



Technical Memorandum

To: Karen Jurist, EPA, Region 9
From: Don Gruber, Senior Hydrogeologist, Gilbane
Date: May 10, 2017
Subject: Monitoring Well Installation and Groundwater Monitoring Results, July and September 2016, Southern Avenue Industrial Area Superfund Site Remedial Investigation/Feasibility Study, South Gate, California
Contract / TO: EP-S9-08-03/TO 63 **Gilbane DCN:** 07163.0064.0070

This technical memorandum documents results from the groundwater sampling activities conducted at the Southern Avenue Industrial Area (SAIA) Superfund Site (site), South Gate, Los Angeles County, California, in July and September 2016. Sampling activities were conducted as part of the remedial investigation/feasibility study (RI/FS) at SAIA and implemented in accordance with *Final Sampling and Analysis Plan, Remedial Investigation/Feasibility Study, Southern Avenue Industrial Area Superfund Site, South Gate, California* (Sampling and Analysis Plan [SAP]; ITSI Gilbane, 2012).

In July, 2016, 44 monitoring wells were sampled, including 11 newer wells (SAIA-MW9A/9B/9C, SAIA-MW10, SAIA-MW11A/11B/11C, SAIA-MW12A/12B/12C, and SAIA-MW13) that were recently installed in the farthest downgradient area from the site in June 2016 (**Figure 1**). In September, 2016, the 11 newer monitoring wells were sampled a second time. This technical memorandum provides an evaluation of this groundwater data to assess any potential data gaps before preparing the Remedial Investigation Report. Data collected from the wells are intended to assess the magnitude of remaining on-site sources and the extent of ongoing contaminant migration downgradient from the site. These data are also used to further define groundwater flow directions in the Gaspur Aquifer and the upper portion of the underlying Exposition Aquifer downgradient from the site. The rationale for selecting the new well locations and the selection of existing wells to be sampled is presented in *Groundwater Sampling Results, July 2015, Southern Avenue Industrial Area Superfund Site, Technical Memorandum* (Gilbane Federal, 2016). The new well construction as-built drawings cone penetrometer testing (CPT) borings and supplemental well boring logs used to support the design of the new wells are included in **Attachment 1**.

Geologic and Hydrogeologic Conditions

Detailed background subsurface conditions are provided in the above-cited SAP. For convenience in understanding this technical memorandum, the geologic and hydrogeologic conditions at the site are briefly described below.

- The Bellflower Aquiclude extends from the ground surface to a depth of approximately 60 feet below ground surface (bgs) and is composed primarily of fine-grained sediments (silts and clays).
- A laterally continuous layer of silty sand exists within the Bellflower Aquiclude between approximately 32 feet and 40 feet bgs and contains perched groundwater. (Deeper perched groundwater also has been noted at other sites in the vicinity of the site.)

- The Gaspur Aquifer underlies the Bellflower Aquiclude and is composed of alluvial sands, gravels, silts, and some clays. The bottom of the Gaspur Aquifer is approximately 110 feet to 120 feet bgs in the vicinity of the site. The potentiometric surface for the Gaspur Aquifer occurs at approximately 50 feet bgs, with a south to slightly southeast flow direction/gradient (groundwater elevation contour maps from the adjacent Cooper Drum Superfund Site [Haley & Aldrich, 2016]) are included in **Attachment 2** to this technical memorandum).
- For the reporting of groundwater monitoring data from groundwater sampling programs for the site and the adjacent Cooper Drum Superfund Site, the Gaspur Aquifer has been divided into three depth intervals, referred to as the Shallow Gaspur, Intermediate Gaspur, and Lower Gaspur Aquifer. However, water elevations in wells screened separately within the shallow, intermediate, and lower zones of the Gaspur Aquifer at these two sites generally are the same, indicating hydraulic connectivity between all three intervals.
- The Exposition Aquifer underlies the Gaspur Aquifer at a depth of approximately 120 feet bgs and generally is separated from the Gaspur Aquifer by a layer of low-permeability silts and clays. The lower permeable materials in conjunction with deeper groundwater extraction create a downward vertical gradient, which has been observed between these two aquifers. Regional flow direction in the Exposition Aquifer tends to be southerly; however, water-level data from the existing wells completed in the upper Exposition Aquifer in the vicinity of the site do not show a consistent flow direction.

The geologic cross-section A-A' was prepared based on the CPT investigations conducted since 2013 at the site. The location of the geologic cross-section is presented on **Figure 1**, and the cross-section is presented in **Figure 1A**. The cross-section depicts the subsurface geology and hydrogeology from the site extending to the recently investigated downgradient area at Aldrich Road and is consistent with the general hydrogeologic information described above. Also nearby monitoring wells are projected onto the cross-section with the prevalent volatile organic compound (VOC) concentrations from the July 2016 sampling event.

Background

Groundwater contamination has been reported in the Gaspur Aquifer from operations associated with the site, the Cooper Drum Superfund Site, and the Jervis Webb Superfund Site. Initial investigations conducted on, and downgradient from, the site have identified the presence of VOCs in groundwater. A brief summary of previous investigations conducted at the site is presented in **Attachment 3**.

Three potentially commingling groundwater plumes have been identified in the area. These plumes are the Cooper Drum plume, located west and cross-gradient of the site; the Jervis Webb plume, north and upgradient of the site; and an unnamed plume originating in the vicinity of MW-56 (**Figure 1**), and located southwest and cross-gradient of the site near the intersection of Atlantic and Duncan avenues. The plume in the vicinity of MW-56 has been classified as a release of trichloroethene (TCE); cis-1,2-dichloroethene (cis-1,2 DCE); and trans-1,2-dichloroethene (trans-1,2-DCE) to the Shallow Gaspur Aquifer with no identified source

(Weston Solutions, Inc., 2012). Groundwater contamination also is being investigated under an RI/FS on the Los Angeles Unified School District (LAUSD) property, which is approximately 1,600 feet south and downgradient from the site. Groundwater analytical data and water-level data from monitoring wells associated with the above-mentioned sites are included on the figures presented in this technical memorandum.

Monitoring Well Installation

Three triple-completion wells and two single-completion wells in the Gaspur Aquifer and Exposition Aquifer, respectively, were installed in June 2016 in the downgradient area from the site (**Figure 1**). The investigation of the downgradient area included one triple-completion well (SAIA-MW9A/9B/9C), and one single-completion well (SAIA-MW10) on the LAUSD property, specifically adjacent to Tweedy Boulevard; one triple-completion well (SAIA-MW11A/11B/11C) on Chakemco Street; and one triple-completion well (SAIA-MW12A/12B/12C) and one single-completion well (SAIA-MW13) on Aldrich Road. The wells installed on Aldrich Road are the farthest downgradient wells thus far, approximately 2,700 feet from the site. Two CPT (SAIA-CPT21 and SAIA-CPT22) borings were conducted on Chakemco Street and Aldrich Road to support the design of the monitoring wells. When CPT advancement was depth limited on Aldrich Road, continuous sampling using a hollow-stem auger drilling rig was conducted at depths beyond the CPT advancement to collect complementary lithology information and confirm the zone of interface between the Gaspur and Exposition aquifers. The newly installed wells were subsequently developed at least 72 hours after completion. The new well construction as-built drawings, cone penetrometer testing (CPT) borings and well borings used to support the design of the new wells are included in **Attachment 1**.

Groundwater Monitoring and Sampling Activities

Field activities for groundwater monitoring and sampling were conducted in July and September 2016. Groundwater depths were collected from 74 well points from single and multiple wells, and groundwater samples were collected from 44 wells (**Figure 1**) in the July 2016 sampling event. Groundwater depths were also collected in September 2016 during the second round of sampling from the 11 new monitoring wells installed in June 2016. The water elevations from these two monitoring events are included in **Table 1**.

Groundwater elevation data measured from the site wells indicate a predominant south to southeast flow direction within the Gaspur Aquifer. Localized flow patterns west of the site may be influenced by the operation of the extraction system on and downgradient of the Cooper Drum site. Groundwater potentiometric contouring for the shallow, intermediate, and lower Gaspur Aquifer are included as **Figure 2**, **Figure 3**, and **Figure 4**. Groundwater elevations for the Exposition Aquifer are shown on **Figure 5** and do not show a consistent flow pattern or direction. The water levels collected during the September 2016 sampling event are generally consistent with those shown on **Figure 2** through **Figure 5**. Wells SAIA-MW11C and SAIA-MW12C are completed at slightly deeper depths (5 to 10 feet) than most wells completed in the lower Gaspur Aquifer. As such, the elevation data from these wells reflect a downward vertical gradient which is consistent with the vertical gradient measured between the Gaspur and Exposition Aquifers.

Groundwater samples were collected from the newer wells that included, nine triple-completion wells representing the shallow (55 feet to 70 feet bgs), intermediate (70 feet to 90 feet bgs), and lower (90 feet to 114 feet bgs) zones of the Gaspur Aquifer. Groundwater samples were also collected from four single-completion wells that were recently completed in the Exposition Aquifer, at depths of approximately 130 feet bgs, and 13 existing wells that were installed during the Cooper Drum RI/FS and Remedial Design/Remedial Action. The wells sampled are as follows.

- New wells – SAIA-MW9A/9B/9C, SAIA-MW10, SAIA-MW11A/11B/11C, SAIA-MW12A/12B/12C, and SAIA-MW13.
- Existing wells – SAIA-MW1A/1B/1C, SAIA-MW2A/2B/2C, SAIA-MW3A/3B/3C, SAIA-MW4A/4B/4C, SAIA-MW5A/5B/5C, SAIA-MW6A/6B/6C, SAIA-MW7, SAIA-MW8, MW-32, MW-34, MW-35, MW-42, MW-43, MW-44, MW-45, MW-46, MW-47, MW-48, MW-49, MW-52, MW-56.

As previously noted, data from other wells associated with nearby sites are also presented in this technical memorandum and include data from: 1) June 2016 sampling event from the Cooper Drum site (Haley & Aldrich, 2016); 2) February 2015 sampling event of perched and shallow zone wells on the LAUSD property (Accord Engineering, Inc., 2015); 3) CPT/HydroPunch samples from the “Atlantic Plume” previously discussed (Weston Solutions, Inc., 2012); and 4) 2007 data from two abandoned wells (001-MW12C1 and 001-MW12C2) located on the north side of the LAUSD property (Parsons, 2008). Finally, selected CPT/Hydropunch borings that were used to install the existing SAIA monitoring well locations (ITSI Gilbane Company, 2013), and the new SAIA monitoring well locations (Gilbane Federal, 2016) are also presented on the figure included in **Attachment 3**.

Groundwater sampling was performed using low-flow sampling methods. Samples were collected using a non-dedicated submersible pump equipped with flow control to adjust the discharge rate to approximately 200 milliliters (mL) to 500 mL per minute, to minimize drawdown. Dedicated tubing was used for each well and each interval. The pump was decontaminated before sampling at each well location and/or interval in accordance with U.S. Environmental Protection Agency (EPA)-approved procedures.

Groundwater field parameters (pH, specific conductance, dissolved oxygen, temperature, oxidation-reduction potential [ORP], ferrous iron, and turbidity) were measured throughout the purging process. Purging was considered complete when at least three successive readings of parameters (recorded approximately every 3 minutes to 5 minutes) were within the following criteria: ± 0.1 for pH, $\pm 3\%$ for conductivity, $\pm 10\%$ for dissolved oxygen, ± 10 millivolts for ORP, less than 10 nephelometric turbidity units (NTUs) for turbidity (or 25 NTUs for clay formations, as necessary), and less than 0.33 foot (approximately 4 inches) of water-level drawdown. In the event that turbidity was greater than 10 NTUs, the Puls and Barcelona (Puls and Barcelona, 1996) goal of $\pm 10\%$ variance for NTUs was followed. Groundwater samples were submitted for analysis of VOCs and 1,4-dioxane. All samples were submitted in accordance with the required sample collection, preservation, and chain-of-custody procedures. Further details regarding sample collection, analytical, and quality control requirements are discussed in the SAP (ITSI Gilbane Company, 2012).

Groundwater Sampling Results

Table 2 summarizes the detected results for VOC and 1,4-dioxane analysis from samples collected in July and September 2016, and also include data from previous sampling events at SAIA in 2014. Concentrations of VOCs detected above the respective laboratory reporting limits were compared to the corresponding California State Water Resources Control Board maximum contaminant levels (MCLs; California Department of Public Health, 2014). The highlighted results in yellow represent concentrations detected above the MCL screening criteria. High concentrations of TCE and cis-1,2-DCE are considered to be representative of VOC plume(s) emanating from SAIA and other sites in the vicinity. **Figure 6**, **Figure 7**, and **Figure 8** present TCE results for the shallow, intermediate, and lower Gaspur aquifer, respectively. TCE and cis-1,2-DCE results for wells installed in the upper portion of the Exposition Aquifer are presented on **Figure 9**. **Figure 10**, **Figure 11**, and **Figure 12** present cis-1,2-DCE results for the shallow, intermediate, and lower Gaspur Aquifer, respectively. **Figure 13**, **Figure 14**, **Figure 15** and **Figure 16** present 1,4-dioxane results for the shallow, upper, lower Gaspur Aquifer and the upper Exposition Aquifer, respectively. The concentrations posted on Figures 6 through 16, for the new wells sampled in July and September 2016, represent the highest concentration detected from the two sampling events.

Cis-1,2-DCE; trans-1,2-DCE; 1,2-dichloroethane; TCE; and 1,4-dioxane were the most prevalent detections of VOCs, and sampling results indicated that concentrations exceeded MCLs for one or more compounds in nearly all of the samples collected. Sampling results indicated that 1,1-dichloroethane (1,1-DCA), vinyl chloride (VC), and benzene also were present at concentrations exceeding MCLs, although less frequently.

Table 2 includes results of VOC analysis from samples collected in 2014. Although the amount of data collected is limited for a definitive trend analysis, the comparison of 2014 and 2016 sampling data provides a look at the concentrations trending over the sampling events.

Conclusions and Recommendations

The primary objective of this field investigation was to confirm the CPT/HydroPunch results from the LAUSD property, and define the downgradient vertical and lateral extent of the SAIA groundwater plume. Other objectives were to further evaluate the areas of commingling with the Cooper Drum and Jervis Webb plumes and address the potential effect of shallow groundwater sources (located on the LAUSD property) on the SAIA plume.

- The most widespread contaminants identified in groundwater at concentrations exceeding MCLs beneath and downgradient of the site are TCE, cis-1,2-DCE, trans-1,2-DCE, and 1,4-dioxane.
- Sampling results indicated that concentrations of TCE and cis-1,2-DCE were elevated in the Shallow Gaspur Aquifer in wells located on the southeastern portion of the site (SAIA-MW1A and SAIA-MW2A) and central western portion (MW-42) of the site, with the highest concentrations detected at SAIA-MW1A (TCE at 1,500 micrograms per liter [ug/L] and cis-1,2-DCE at 3,900 ug/L). The bulk of the on-site VOC contamination appears to be in the Shallow Gaspur. Sampling results indicated lower concentrations of

TCE, still exceeding MCLs, in the Exposition Aquifer beneath the site. Sampling results indicated cis-1,2-DCE concentrations above MCLs were in most of the Gaspur Aquifer and the upper Exposition Aquifer (SAIA-MW7) beneath the site.

- Among off-site and downgradient wells, the highest concentrations of TCE and cis-1,2-DCE were detected in the Intermediate Gaspur Aquifer, with the highest detections in well SAIA-MW3B (TCE at 3,500 ug/L and cis-1,2-DCE at 4,600 ug/L). SAIA-MW3A/3B/3C is located approximately 400 feet south of the on-site well SAIA-MW1A/1B/1C, suggesting a downward migration of contaminants from on-site sources. Elsewhere, cis-1,2-DCE was also detected at concentrations highly elevated above the MCL in the Intermediate Gaspur Aquifer (SAIA-MW4B and SAIA-MW5B), and migrates further downward into the Lower Gaspur Aquifer and Exposition Aquifer with concentrations elevated above the MCL detected in the new wells (SAIA-MW9C, SAIA-MW10, and SAIA-MW13) farthest downgradient from the site. At the farthest downgradient monitoring wells (SAIA-MW12A/12B/12C) concentrations of VOCs were below the MCL in all zones of the Gaspur Aquifer, with the exception of 8 ug/L of cis-1,2-DCE detected in the September 2016 sample from SAIA-MW12C.
- Others VOCs such as VC; 1,1-DCA; and 1,2-dichloroethane were sparsely detected at moderate concentrations above MCLs within the Gaspur Aquifer both on site and off site.
- The sampling detected higher concentrations of 1,4-dioxane in the Shallow Gaspur Aquifer beneath the site and it migrates into the Intermediate Gaspur Aquifer in the off-site downgradient area. The 1,4-dioxane plume extent in the downgradient area is defined by the newly installed wells SAIA-MW11A/11B/11C and SAIA-MW12A/12B/12C located at Chakemco Street and Aldrich Road, respectively. 1,4-dioxane concentrations were detected slightly above the screening level in the Exposition Aquifer and limited to on-site well SAIA-MW7 and off-site well SAIA-MW13.
- VOC impacts to the Exposition Aquifer beneath the site are much less significant than those observed in the overlying Gaspur Aquifer. TCE contamination above the MCL is isolated in the vicinity of SAIA-MW7; however, high cis-1,2-DCE concentrations (>100 ug/L) were detected at two of the recently installed wells (SAIA-MW10 and SAIA-MW13) in the farthest downgradient area at approximately 2,700 feet south of the site, indicating VOC impacts farthest downgradient of the site are greater in the Exposition Aquifer.
- The high concentrations of cis-1,2-DCE farthest downgradient of the site and relatively low detections of other VOCs suggest biotransformation (through reductive dechlorination) of VOCs is occurring and may be stalling at cis-1,2-DCE.
- The comparison of 2016 versus 2014 data suggests a significant decline in VOC concentrations throughout the site wells installed before or during 2014. TCE and cis-1,2-DCE concentrations declined more than 50% and to a maximum of 90% in most of the wells across the site. Cis-1,2-DCE concentrations increased slightly in a few wells sampled in 2016.
- The lateral extent of the VOC plume resulting from on-site and upgradient sources remains unclear. It is expected that the field investigation concurrently being performed

for the Jervis Webb Superfund Site will address the potential upgradient sources that appear to be migrating beneath the ELG Metals and SAIA properties, as suggested by the higher concentrations in the Lower Gaspur Aquifer (and Exposition Aquifer) when compared to the lower concentrations in the Intermediate Gaspur Aquifer beneath these properties.

- The area of commingling of the SAIA plume with the Cooper Drum plume is in the general vicinity of the intersection of Adella and Southern avenues on the SAIA property and continues to the south-southwest, which is consistent with the general groundwater flow direction.
- The non-detect and lower concentrations of TCE and cis-1,2-DCE in the shallow and intermediate zones of the Gaspur Aquifer, at well locations SAIA-MW9A/9B and SAIA-MW11A/11B indicate a source of VOCs is present between these well locations (**Figure 6, Figure 7, Figure 10, and Figure 11**). The VOC plume, emanating from beneath the LAUSD property, is likely commingling with the SAIA plume at the approximate depth of the intermediate Gaspur Aquifer.
- The results for the new monitoring wells indicate VOC concentrations in the farthest downgradient area of the site are declining; however, the lateral and vertical extent of the SAIA VOC plume is undefined. To further assess the lateral and vertical extent of groundwater contamination downgradient of the site, the following additional remedial activities are proposed:
 - Collect depth-discrete/grab groundwater samples at four additional borings. Collect groundwater samples every 20 feet beginning at 130 feet bgs down to 230 feet bgs. Samples are proposed at the locations on Figure 17.
 - Based on the geology sonic drilling is the preferred drilling method as it will provide better borehole stability, generate fewer drill cuttings, and no drilling mud.
 - Collect a continuous core of subsurface lithology to provide a more precise description of geologic conditions at depth.
 - Following the above data collection and analysis, install additional groundwater monitoring wells to define the horizontal and vertical limits of the cis-1,2-DCE plume within the Exposition Aquifer migrating downgradient from the site.
- One round of groundwater sampling for microbial and geochemistry analysis in select wells (upgradient, source, and downgradient areas) to evaluate how site geochemistry and *Dehalococcoides* (or DHC) bacteria abundance may affect contaminant transformation and detoxification.
- Sampling groundwater for compound-specific isotope analysis in select wells (upgradient, source, cross-gradient, and downgradient area) to support the evaluation of potential contaminant sources, to determine the extent of degradation, and to define the commingling of contaminant plumes.

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TABLES

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ATTACHMENTS

- Attachment 1 As-Built Drawings for New Wells and CPT/Boring Logs
- Attachment 2 Groundwater Elevation Contour Maps from Adjacent Cooper Drum Superfund Site
- Attachment 3 Summary of Previous Investigations



TABLES

Table 1
Groundwater Elevation Data
Southern Avenue Industrial Area Superfund Site,
South Gate, California

Location ID	Measurement Point Elevation (feet MSL)	Water Level Measurement Date	Depth to Water from TOC (feet)	Groundwater Elevation (feet MSL)
MW15	104.27	07/26/2016	60.02	44.25
		09/23/2016	60.23	44.04
MW15B	104.52	07/26/2016	60.14	44.38
		09/23/2016	60.38	44.14
MW16	104.91	07/26/2016	64.72	40.19
		09/23/2016	65.02	39.89
MW24	103.94	07/26/2016	59.60	44.34
		09/23/2016	59.85	44.09
MW25	103.74	07/26/2016	59.60	44.14
		09/23/2016	59.78	43.96
MW25B	103.48	07/26/2016	59.62	43.86
		09/23/2016	59.83	43.65
MW26	103.89	09/23/2016	66.22	37.67
MW27	103.57	07/26/2016	59.72	43.85
		09/23/2016	59.88	43.69
MW28	103.48	07/26/2016	59.85	43.63
		09/23/2016	60.09	43.39
MW29	103.08	07/26/2016	59.10	43.98
		09/23/2016	59.40	43.68
MW29A	102.82	07/26/2016	58.89	43.93
		09/23/2016	59.10	43.72
MW30	103.03	07/26/2016	60.00	43.03
		09/23/2016	60.09	42.94
MW31	103.26	07/26/2016	59.22	44.04
		09/23/2016	59.53	43.73
MW31A	102.98	07/26/2016	58.64	44.34
		09/23/2016	58.98	44.00
MW31B	103.07	07/26/2016	59.50	43.57
		09/23/2016	59.75	43.32

Table 1
Groundwater Elevation Data
Southern Avenue Industrial Area Superfund Site,
South Gate, California

Location ID	Measurement Point Elevation (feet MSL)	Water Level Measurement Date	Depth to Water from TOC (feet)	Groundwater Elevation (feet MSL)
MW32	103.23	07/26/2016	65.33	37.90
		09/23/2016	65.76	37.47
MW34	103.14	07/26/2016	58.64	44.50
		09/23/2016	59.06	44.08
MW35	103.17	07/26/2016	59.25	43.92
		09/23/2016	59.54	43.63
MW36	102.67	07/26/2016	58.82	43.85
		09/23/2016	59.03	43.64
MW37	102.44	07/26/2016	58.91	43.53
		09/23/2016	59.22	43.22
MW38	102.20	07/26/2016	58.23	43.97
		09/23/2016	58.64	43.56
MW39	102.27	07/26/2016	58.55	43.72
		09/23/2016	58.88	43.39
MW40	102.00	07/26/2016	58.45	43.55
		09/23/2016	58.75	43.25
MW41	104.27	07/26/2016	60.31	43.96
		09/23/2016	60.41	43.86
MW42	104.30	07/26/2016	60.10	44.2
		09/23/2016	60.25	44.05
MW43	104.17	07/26/2016	59.92	44.25
		09/23/2016	60.15	44.02
MW44	104.12	07/26/2016	60.20	43.92
		09/23/2016	60.10	44.02
MW45	102.39	07/26/2016	58.49	43.90
		09/23/2016	58.85	43.54
MW46	101.78	07/26/2016	58.14	43.64
		09/23/2016	58.44	43.34

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Southern Avenue Industrial Area Superfund Site,
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Location ID	Measurement Point Elevation (feet MSL)	Water Level Measurement Date	Depth to Water from TOC (feet)	Groundwater Elevation (feet MSL)
MW47	101.68	07/26/2016	57.93	43.75
		09/23/2016	58.31	43.37
MW48	101.62	07/26/2016	57.95	43.67
		09/23/2016	58.28	43.34
MW49	100.58	07/26/2016	57.33	43.25
		09/23/2016	57.58	43.00
MW50	100.58	07/26/2016	57.45	43.13
		09/23/2016	57.73	42.85
MW51	100.56	07/26/2016	57.48	43.08
		09/23/2016	57.75	42.81
MW52	100.70	07/26/2016	57.50	43.2
		09/23/2016	57.70	43.00
MW53	100.65	07/26/2016	57.50	43.15
		09/23/2016	57.81	42.84
MW54	100.81	07/26/2016	58.22	42.59
		09/23/2016	58.25	42.56
MW55	102.52	07/26/2016	64.73	37.79
		09/23/2016	64.75	37.77
MW56	101.66	07/26/2016	58.14	43.52
		09/23/2016	58.46	43.20
MW62A	105.12	07/26/2016	60.75	44.37
		09/23/2016	61.54	43.58
MW62B	105.12	07/26/2016	60.82	44.30
		09/23/2016	61.60	43.52
PZ7A	105.57	07/26/2016	61.34	44.23
		09/23/2016	61.00	44.57
PZ7B	105.56	07/26/2016	61.42	44.14
		09/23/2016	61.06	44.5

Table 1
Groundwater Elevation Data
Southern Avenue Industrial Area Superfund Site,
South Gate, California

Location ID	Measurement Point Elevation (feet MSL)	Water Level Measurement Date	Depth to Water from TOC (feet)	Groundwater Elevation (feet MSL)
SAIA-MW1A	104.92	07/26/2016	61.35	43.57
		09/23/2016	60.11	44.81
SAIA-MW1B	104.76	07/26/2016	59.94	44.82
		09/23/2016	60.22	44.54
SAIA-MW1C	104.71	07/26/2016	60.00	44.71
		09/23/2016	60.20	44.51
SAIA-MW2A	104.76	07/26/2016	59.92	44.84
		09/23/2016	60.30	44.46
SAIA-MW2B	104.75	07/26/2016	60.00	44.75
		09/23/2016	60.28	44.47
SAIA-MW2C	104.76	07/26/2016	59.93	44.83
		09/23/2016	60.45	44.31
SAIA-MW3A	102.12	07/26/2016	58.22	43.9
		09/23/2016	58.38	43.74
SAIA-MW3B	102.10	07/26/2016	57.85	44.25
		09/23/2016	58.18	43.92
SAIA-MW3C	102.12	07/26/2016	58.65	43.47
		09/23/2016	58.31	43.81
SAIA-MW4A	100.89	07/26/2016	57.42	43.47
		09/23/2016	57.42	43.47
SAIA-MW4B	101.04	07/26/2016	57.15	43.89
		09/23/2016	57.55	43.49
SAIA-MW4C	100.86	07/26/2016	57.02	43.84
		09/23/2016	53.37	47.49
SAIA-MW5A	99.84	07/26/2016	56.65	43.19
		09/23/2016	56.97	42.87
SAIA-MW5B	99.91	07/26/2016	56.75	43.16
		09/23/2016	57.04	42.87

Table 1
Groundwater Elevation Data
Southern Avenue Industrial Area Superfund Site,
South Gate, California

Location ID	Measurement Point Elevation (feet MSL)	Water Level Measurement Date	Depth to Water from TOC (feet)	Groundwater Elevation (feet MSL)
SAIA-MW5C	99.84	07/26/2016	56.78	43.06
		09/23/2016	57.07	42.77
SAIA-MW6A	100.34	07/26/2016	57.50	42.84
		09/23/2016	57.30	43.04
SAIA-MW6B	100.10	07/26/2016	57.00	43.10
		09/23/2016	57.23	42.87
SAIA-MW6C	100.19	07/26/2016	57.11	43.08
		09/23/2016	57.33	42.86
SAIA-MW7	104.64	07/26/2016	66.62	38.02
SAIA-MW8	100.15	07/26/2016	61.62	38.53
		09/23/2016	61.98	38.17
SAIA-MW9A	97.51	07/26/2016	48.15	49.36
		09/23/2016	48.55	48.96
SAIA-MW9B	97.41	07/26/2016	55.82	41.59
		09/23/2016	56.10	41.31
SAIA-MW9C	97.59	07/26/2016	55.95	41.64
		09/23/2016	56.27	41.32
SAIA-MW10	97.38	07/26/2016	59.23	38.15
		09/23/2016	59.60	37.78
SAIA-MW11A	97.78	07/26/2016	56.52	41.26
		09/23/2016	56.79	40.99
SAIA-MW11B	97.88	07/26/2016	56.50	41.38
		09/23/2016	56.90	40.98
SAIA-MW11C	97.85	07/26/2016	58.80	39.05
		09/23/2016	59.18	38.67
SAIA-MW12A	96.51	07/26/2016	54.71	41.80
		09/23/2016	55.19	41.32

Table 1
Groundwater Elevation Data
Southern Avenue Industrial Area Superfund Site,
South Gate, California

Location ID	Measurement Point Elevation (feet MSL)	Water Level Measurement Date	Depth to Water from TOC (feet)	Groundwater Elevation (feet MSL)
SAIA-MW12B	96.53	07/26/2016	55.11	41.42
		09/23/2016	55.16	41.37
SAIA-MW12C	96.51	07/26/2016	56.25	40.26
		09/23/2016	56.48	40.03
SAIA-MW13	96.60	07/26/2016	58.38	38.22
		09/23/2016	58.68	37.92

MSL - mean sea level

TOC - top of casing

Table 2

Monitoring Well Sampling VOC Analytical Results March/August 2014 and July/September 2016

Southern Avenue Industrial Area Superfund Site, South Gate, California

Location	Sample Date	Screen Interval (bgs)	Tetrachloroethane	Trichloroethene	cis-1,2-Dichloroethene	1,1-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	1,1-Dichloroethane	1,2-Dichloroethane	Benzene	1,1-Dichloropropane	1,4-Dioxane (p-Dioxane)	1,2,3-Trichloropropane	Toluene
MW32	07/13/2016	122-132	<0.5	<0.5	0.67	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW32	07/13/2016	122-132	<0.5	<0.5	0.63	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW34	03/26/2014	58-68	<2.5	45	470	<2.5	25	<2.5	1.6 J	<2.5	<2.5	<2.5	1.3	<2.5	<2.5
MW34	03/26/2014	58-68	<2	38	450	<2	20	<2	1.3 J	<2	<2	<2	1.5	<2	<2
MW34	07/12/2016	58-68	<0.5	4.5	170	0.94	9.9	0.81	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW35	03/26/2014	95-105	<0.5	6.9	58	<0.5	5.5	<0.5	0.33 J	5.8	<0.5	<0.5	2.3	<0.5	<0.5
MW35	07/12/2016	95-105	<0.5	3.5	330	4	15	<0.5	3	6.8	0.7	<0.5	19	<0.5	<0.5
MW42	03/26/2014	56-66	<10	390	4,000	<10	75	<10	25	<10	<10	<10	24	<10	<10
MW42	07/12/2016	56-66	<2.5	32	1,100 J	3.7 J	40 J	<2.5	18	<2.5	<2.5	<2.5	47	<2.5	<2.5
MW43	03/26/2014	77-87	<0.5	8.6	25	<0.5	1.4	<0.5	0.22 J	7.6	<0.5	<0.5	2.8	<0.5	<0.5
MW43	07/12/2016	77-87	<0.5	5.4	42	3.4	3	1	1	44	<0.5	<0.5	4	<0.5	<0.5
MW44	03/26/2014	96-106	<0.5	2.9	21	<0.5	1.5	<0.5	0.2 J	4	<0.5	<0.5	2.8	<0.5	<0.5
MW44	07/12/2016	96-106	<0.5	<0.5	0.37 J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	8.2	<0.5	<0.5
MW45	03/25/2014	79-89	<0.5	2.2	39	<0.5	3.7	<0.5	0.21	0.84	<0.5	<0.5	2.1	<0.5	<0.5
MW45	07/14/2016	79-89	<0.5	1.6	76	0.99	5.8	<0.5	0.45 J	5.4	0.43 J	<0.5	3.5	<0.5	<0.5
MW46	03/24/2014	57-67	<0.5	8.6 J	47 J	<0.5	3.7 J	<0.5	0.097 J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW46	07/19/2016	57-67	<1	57	460	2.2	37	<1	7.5	<1	<1	<1	3.5	<1	<1
MW47	03/24/2014	77-87	<4	14	700	<4	47	<4	1.3 J	<4	<4	<4	1.8	<4	<4
MW47	07/19/2016	77-87	<5	5.4	490	<5	30	<5	6.1	<5	<5	<5	6.2	<5	<5
MW48	03/24/2014	98-108	<0.5	29	82	2.1	5.5	<0.5	1.6	6.9	<0.5	0.12	8.7	<0.5	<0.5
MW48	07/19/2016	98-108	<0.5	1.3	100	1.9	6.3	1.1	1.3	15	<0.5	<0.5	13	<0.5	<0.5
MW49	03/26/2014	60-70	<0.5	2.9	41	<0.5	3.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW49	07/15/2016	60-70	<0.5	1.6	49	<0.5	6.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW49	07/15/2016	60-70	<0.5	1.6	55	<0.5	5.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW52	03/25/2014	66-76	<0.5	6.1	18	<0.5	5	<0.5	<0.5	<0.5	<0.5	2.4	<0.5	<0.5	<0.5
MW52	03/25/2014	66-76	<0.5	5.6	16	<0.5	4.2	<0.5	<0.5	<0.5	<0.5	2.1	<0.5	<0.5	<0.5
MW52	07/19/2016	66-76	<0.5	5.6	15	<0.5	6.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW56	03/26/2014	62-72	<2	290	450	<2	15	<2	<2	<2	<2	<2	<2	<0.5	<2
MW56	07/18/2016	62-72	<1	74	260	<1	15	<1	<1	<1	<1	<1	<0.5	<1	<1
SAIA-MW1A	03/27/2014	60-65	<100	7,400 J	3,300	<100	71 J	<100	21 J	<100	<100	<100	1.6 J	<100	<100
SAIA-MW1A	08/25/2014	60-65	0.42 J	4,800	6,900	16	96 J	<360	17	<0.5	0.29 J	<0.5	1.4	<0.5	0.51
SAIA-MW1A	07/14/2016	60-65	<25	1,500	3,900	<25	160	<25	22 J	<25	<25	<25	<0.5	<25	<25
SAIA-MW1B	03/27/2014	75-85	<0.5	17	59	<0.5	4.6	<0.5	0.25	0.48 J	<0.5	<0.5	1.9	<0.5	<0.5
SAIA-MW1B	08/25/2014	75-85	<0.5	4.3	51	<0.5	4.6	<0.5	0.19 J	0.52	<0.5	<0.5	2.6	<0.5	<0.5
SAIA-MW1B	07/14/2016	75-85	<0.5	0.84	14	<0.5	2	<0.5	<0.5	0.58	<0.5	<0.5	<0.5	<0.5	<0.5

Table 2

Monitoring Well Sampling VOC Analytical Results March/August 2014 and July/September 2016

Southern Avenue Industrial Area Superfund Site, South Gate, California

Location	Sample Date	Screen Interval (bgs)	Tetrachloroethane	Trichloroethene	cis-1,2-Dichloroethene	1,1-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	1,1-Dichloroethane	1,1,2-Dichloroethane	Benzene	1,1,2-Dichloropropane	1,4-Dioxane (p-Dioxane)	1,2,3-Trichloropropane	Toluene
	07/14/2016	75-85	<0.5	0.82	15	<0.5	2.5	<0.5	<0.5	0.64	<0.5	<0.5	<0.5	<0.5	<0.5
SAIA-MW1C	03/27/2014	94-104	<4	420 J	370	<4	34	<4	3.9 J	35	<4	<4	18	<4	<4
	08/25/2014	94-104	<0.5	210	560	6.5	47	1.4	4.2	52	3.7	0.1 J	22	<0.5	<0.5
	07/14/2016	94-104	<0.5	4.4	350	5.3	27	18	2.6	33	3.2	<0.5	7.3	<0.5	<0.5
	03/27/2014	60-65	<10	1,100 J	2,000	<10	74	<10	4.8 J	<10	<10	<10	12	<10	<10
SAIA-MW2A	08/25/2014	60-65	<0.5	1,300	2,500	7.7	110 J	5.5	7.2	0.25 J	0.35 J	<0.5	16	<0.5	<0.5
	08/25/2014	60-65	<0.5	1,300	2,400	7.7	120 J	5.3	7	<0.5	0.35 J	<0.5	15	<0.5	<0.5
	07/11/2016	60-65	<2.5	120	1,300	6.4	85	<2.5	5.5	<2.5	<2.5	<2.5	5.3	<2.5	<2.5
	03/27/2014	76-86	<0.5	6.8 J	69	<0.5	7.2	<0.5	<0.5	6.6	<0.5	<0.5	1.7	<0.5	<0.5
SAIA-MW2B	08/25/2014	76-86	<0.5	2.8	51	0.5	5.9	0.75	0.11 J	5.1	0.2 J	0.23 J	1.3	<0.5	<0.5
	07/11/2016	76-86	<0.5	0.57	10	<0.5	1.5	<0.5	<0.5	0.81	<0.5	<0.5	<0.5	<0.5	<0.5
	03/27/2014	96-106	<2	260 J	360	4.7	28	<2	3	32	6.1	0.19	14	<2	<2
SAIA-MW2C	08/25/2014	96-106	<0.5	200	370	5.2	33	3.3	2.8	34	4.7	<0.5	20	<0.5	<0.5
	07/11/2016	96-106	<0.5	4.7	270 J	3.5 J	19 J	0.87	1.8	33	2.2	<0.5	15	<0.5	<0.5
	03/24/2014	58-68	<0.5	9.2	8.9	<0.5	0.2	<0.5	0.13	<0.5	<0.5	<0.5	<0.5	<0.5	0.073
SAIA-MW3A	08/26/2014	58-68	<0.5	3.6	5.8	<0.5	0.15 J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.46	<0.5	1.3
	07/13/2016	58-68	<0.5	0.29 J	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	03/24/2014	76-86	<25	6,700 J	7,000	18 J	120	<25	49	<25	<25	<25	110	<25	<25
SAIA-MW3B	08/26/2014	76-86	<0.5	6,600	9,100	20	230 J	47	72	2.1	1.5	<0.5	86	<0.5	1.1
	07/13/2016	76-86	<25	3,500	4,600	<25	340	<25	23 J	<25	<25	<25	3.9	<25	<25
	03/24/2014	96-106	<0.5	2.1	38	<0.5	2.5	<0.5	0.2	1.8	<0.5	0.23	1.5	<0.5	<0.5
SAIA-MW3C	03/24/2014	96-106	<0.5	2	37	<0.5	2.5	<0.5	0.2	1.6	<0.5	0.25	1.6	<0.5	<0.5
	08/26/2014	96-106	<0.5	6	27	<0.5	2.6	6.1	0.25 J	2.1	0.085 J	0.27 J	<0.46	<0.5	<0.5
	07/13/2016	96-106	<0.5	5.7	49	<0.5	5.4	<0.5	0.51	2.8	<0.5	<0.5	6.1	<0.5	<0.5
	03/25/2014	58-68	<0.5	0.53	4.7	<0.5	0.19	<0.5	0.32	<0.5	<0.5	<0.5	1.6	<0.5	<0.5
SAIA-MW4A	08/26/2014	58-68	<0.5	0.19 J	0.72	<0.5	<0.5	<0.5	0.34 J	<0.5	<0.5	<0.5	1.8	<0.5	<0.5
	07/22/2016	58-68	<0.5	<0.5	0.16 J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	03/25/2014	74-84	<25	790	4,200	<25	130	<25	15 J	<25	<25	<25	58	<25	<25
SAIA-MW4B	08/26/2014	74-84	<0.5	150 J	4,800	6.6	180 J	6.5	18	0.72	0.55	<0.5	60	<0.5	<0.5
	08/26/2014	74-84	<0.5	150 J	4,800	6.6	180 J	6.5	18	0.69	0.55	<0.5	59	<0.5	<0.5
	07/22/2016	74-84	<10	6.6 J	4,200	<10	210	<10	16	<10	<10	<10	62 J	<10	<10
	03/25/2014	92-102	<10	3.9 J	910	<10	53	<10	3.6 J	<10	<10	<10	14	<10	<10
SAIA-MW4C	08/26/2014	92-102	<0.5	3.4	910	1.3	73	11	4.1	2.1	0.19 J	0.3 J	11	<0.5	1.1
	07/22/2016	92-102	<2.5	2.7	870	<2.5	120	45	5.9	2 J	<2.5	<2.5	7.7	<2.5	1.3 J
	03/25/2014	58-68	<5	1.8 J	530	<5	21	<5	<5	<5	<5	<5	2.4	<5	1.4 J

Table 2

Monitoring Well Sampling VOC Analytical Results March/August 2014 and July/September 2016

Southern Avenue Industrial Area Superfund Site, South Gate, California

Location	Sample Date	Screen Interval (bgs)	Tetrachloroethane	Trichloroethene	cis-1,2-Dichloroethene	1,1-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	1,1-Dichloroethane	1,2-Dichloroethane	Benzene	1,2-Dichloropropane	1,4-Dioxane (p-Dioxane)	1,2,3-Trichloropropane	Toluene
	08/27/2014	58-68	<0.5	1.9	520	0.89	24 J	0.72	0.42 J	<0.5	<0.5	<0.5	2.3	<0.5	0.77
	07/20/2016	58-68	<0.5	1.3	210	<0.5	19	<0.5	<0.5	<0.5	<0.5	<0.5	1	<0.5	<0.5
	07/20/2016	58-68	<0.5	1.2	220	0.66	17	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	<0.5
SAIA-MW5B	03/25/2014	76-86	<25	380	3,100	<25	98	<25	<25	<25	<25	<25	16	<25	8.9 J
	08/27/2014	76-86	<0.5	99 J	3,600	5.5	120 J	4.5	9.5	0.52	0.36 J	<0.5	23	<0.5	1.2
	07/21/2016	76-86	<2.5	3	2,100	<2.5	79	20	6.5	<2.5	<2.5	<2.5	30 J	<2.5	<2.5
SAIA-MW5C	03/25/2014	96-106	<4	6.5	300	<4	21	<4	<4	2 J	<4	<4	3.4	<4	<4
	08/27/2014	96-106	<0.5	4.8	320	0.8	25	<0.5	0.64	1.9	0.18 J	0.26 J	3.2	<0.5	<0.5
	07/21/2016	96-106	<0.5	1.6	95	<0.5	11	<0.5	<0.5	1.6	<0.5	<0.5	2.4	<0.5	<0.5
SAIA-MW6A	03/24/2014	58-68	<0.5	0.087	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.52	<0.5	<0.5
	08/27/2014	58-68	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.53	<0.5	0.68
	07/20/2016	58-68	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SAIA-MW6B	03/24/2014	76-81	<0.5	3.7	13	<0.5	3.9	<0.5	<0.5	0.12	<0.5	<0.5	<0.5	<0.5	0.069
	08/27/2014	76-81	<0.5	3.6	14	<0.5	5.1	<0.5	<0.5	<0.5	<0.5	<0.5	0.26 J	<0.5	0.99
	07/20/2016	76-81	<0.5	2.7	14	<0.5	3.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SAIA-MW6C	03/24/2014	90-100	<0.5	2	17	<0.5	2.3	<0.5	<0.5	0.2	<0.5	<0.5	0.52	<0.5	0.075
	08/27/2014	90-100	<0.5	2.4	21	<0.5	2.8	<0.5	<0.5	<0.5	<0.5	<0.5	0.52	<0.5	<0.5
	07/20/2016	90-100	<0.5	2	17	<0.5	2.9	1.2	<0.5	0.31 J	<0.5	<0.5	<0.5	<0.5	<0.5
SAIA-MW7	03/27/2014	122-132	<0.5	24 J	16	<0.5	1.1	<0.5	0.3	0.96	<0.5	<0.5	1.9	<0.5	<0.5
	03/27/2014	122-132	<0.5	22 J	17	<0.5	1.1	<0.5	0.37	1.1	<0.5	<0.5	2	<0.5	<0.5
	08/25/2014	122-132	<0.5	22	57	0.65	2.5	1.3	0.67	1.6	0.14 J	<0.5	3.6	<0.5	<0.5
	07/11/2016	122-132	<0.5	19	73	<0.5	4.8	<0.5	0.84	2.9	<0.5	<0.5	7.9	<0.5	<0.5
SAIA-MW8	03/24/2014	124-134	<0.5	0.53	0.83	<0.5	0.08	<0.5	<0.5	0.18	<0.5	<0.5	<0.5	<0.5	0.18
	08/25/2014	124-134	<0.5	3.9	1.9	<0.5	0.2 J	<0.5	<0.5	0.62	<0.5	<0.5	0.16 J	<0.5	<0.5
	07/21/2016	124-134	<0.5	1.3	2.2	<0.5	0.31 J	<0.5	<0.5	0.78	<0.5	<0.5	<0.5	<0.5	<0.5
SAIA-MW9A	07/18/2016	55-60	<0.5	<0.5	1.2	<0.5	0.13 J	<0.5	<0.5	<0.5	<0.5	<0.5	7.5	<0.5	<0.5
	07/18/2016	55-60	<0.5	<0.5	0.3 J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6.5 J	<0.5	<0.5
	09/20/2016	55-60	<0.5	<0.5	0.3 J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.5 J	<0.5	<0.5
SAIA-MW9B	07/18/2016	73-78	<0.5	0.91	52	<0.5	5.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5
	09/20/2016	73-78	<0.5	1.4	18	<0.5	1.4	<0.5	<0.5	<0.5	<0.5	<0.5	1 J	<0.5	<0.5
SAIA-MW9C	07/18/2016	94-104	<1	0.7 J	250	<1	22	<1	<1	0.4 J	<1	<1	3.6 J	<1	<1
	07/18/2016	94-104	<1	0.74 J	310	<1	22	<1	<1	0.48 J	<1	<1	1.7 J	<1	<1
	09/20/2016	94-104	<0.5	0.79	500	0.82	35	0.71	0.88	<0.5	<0.5	<0.5	2.1 J	<0.5	<0.5
SAIA-MW10	07/18/2016	128-138	<1	0.93 J	220	<1	14	<1	<1	0.59 J	<1	<1	0.72	<1	<1

Table 2

Monitoring Well Sampling VOC Analytical Results March/August 2014 and July/September 2016

Southern Avenue Industrial Area Superfund Site, South Gate, California

Location	Sample Date	Screen Interval (bgs)	Tetrachloroethane	Trichloroethene	cis-1,2-Dichloroethene	1,1-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	1,1-Dichloroethane	1,2-Dichloroethane	Benzene	1,2-Dichloropropane	1,4-Dioxane (p-Dioxane)	1,2,3-Trichloropropane	Toluene	
	09/20/2016	128-138	<0.5	1.4	480	1.2	19 J	0.67	0.32 J	<0.5	<0.5	<0.5	1.1 J	<0.5	<0.5	
SAIA-MW11A	07/15/2016	74-79	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
	09/22/2016	74-79	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5 J	<0.5	<0.5	
SAIA-MW11B	07/15/2016	96-106	<0.5	16	47	<0.5	6.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
	09/22/2016	96-106	<0.5	15	40	<0.5	3.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5 J	<0.5	<0.5	
SAIA-MW11C	07/15/2016	114.5-119.5	<0.5	11	36	<0.5	6.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
	09/22/2016	114.5-119.5	<0.5	11	55	0.27 J	7.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5 J	<0.5	<0.5	
	09/22/2016	114.5-119.5	<0.5	9.4	61	0.3 J	6.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5 J	<0.5	<0.5	
SAIA-MW12A	07/25/2016	70-80	<0.5	0.63	1	<0.5	0.2 J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
	09/21/2016	70-80	<0.5	0.97	1.5	<0.5	0.35 J	<0.5	<0.5	<0.5	<0.5	<0.5	0.72 J	<0.5	<0.5	
SAIA-MW12B	07/25/2016	94-99	<0.5	<0.5	0.77 J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.73	<0.5	<0.5	
	09/21/2016	94-99	<0.5	1.6	1.7	<0.5	0.42 J	<0.5	<0.5	<0.5	<0.5	<0.5	1 J	<0.5	<0.5	
SAIA-MW12C	07/25/2016	110-115	<0.5	<0.5	0.66 J	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
	09/21/2016	110-115	<0.5	1.5	8	<0.5	0.67	<0.5	<0.5	<0.5	<0.5	<0.5	0.48 J	<0.5	<0.5	
SAIA-MW13	07/21/2016	128-138	<0.5	1.5	190	<0.5	29	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
	09/21/2016	128-138	<0.5	2	250	0.47 J	32	0.36 J	<0.5	<0.5	<0.5	<0.5	0.22 J	<0.5	<0.5	
Screening Criteria																
MCL* (ug/L)			5	5	6	6	10	0.5	5	0.5	1	5	1 ³	0.005 ³	150	
			Detected values above Screening Criteria													

* Based on State Water Resources Control Board maximum contaminant levels (MCLs; July 2014).

Notes:

1) Results reported in micrograms per liter (ug/L).

2) Concentrations detected at or above laboratory reporting limits are shown in bold font.

3) Based on California Department of Public Health Notification Level.

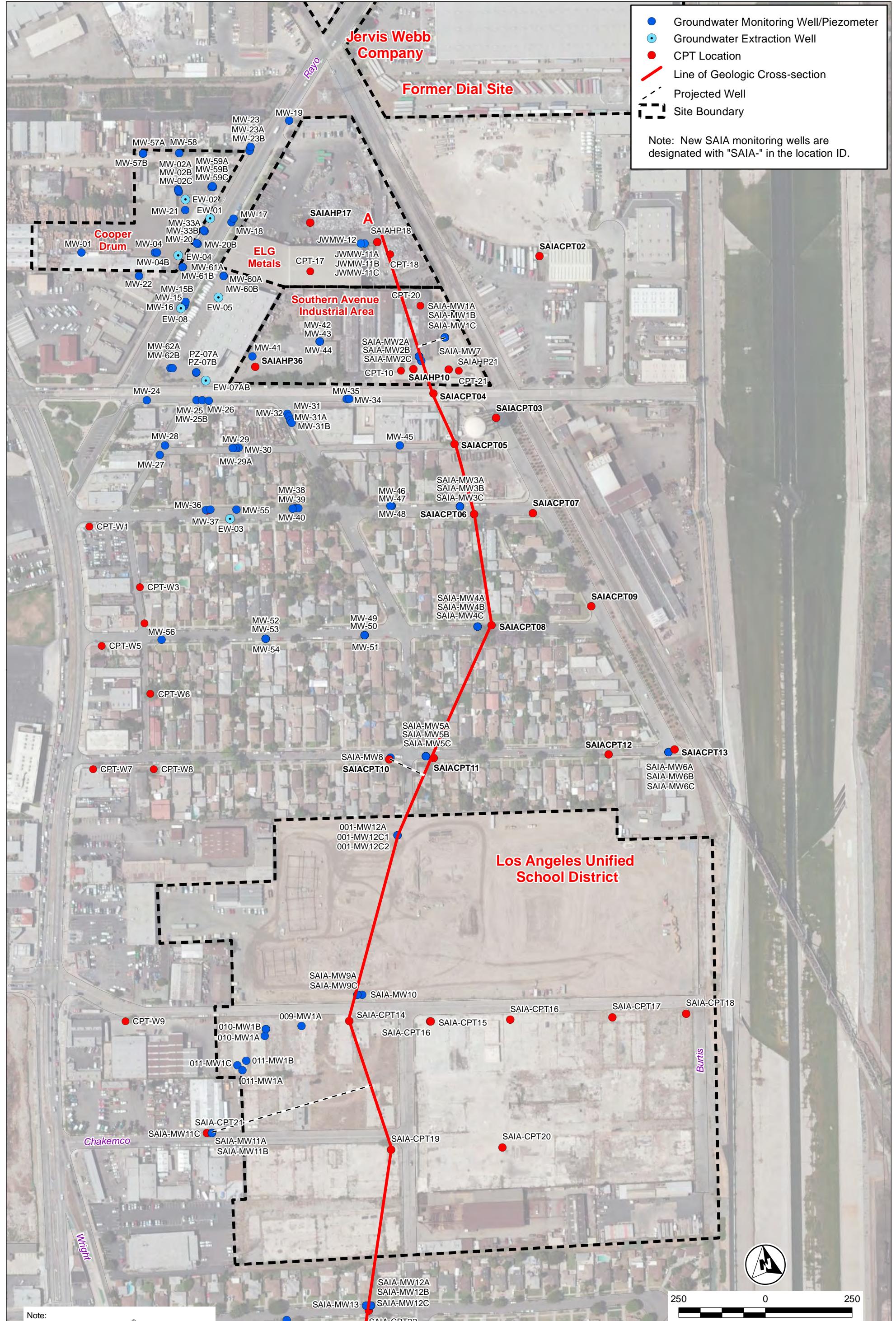
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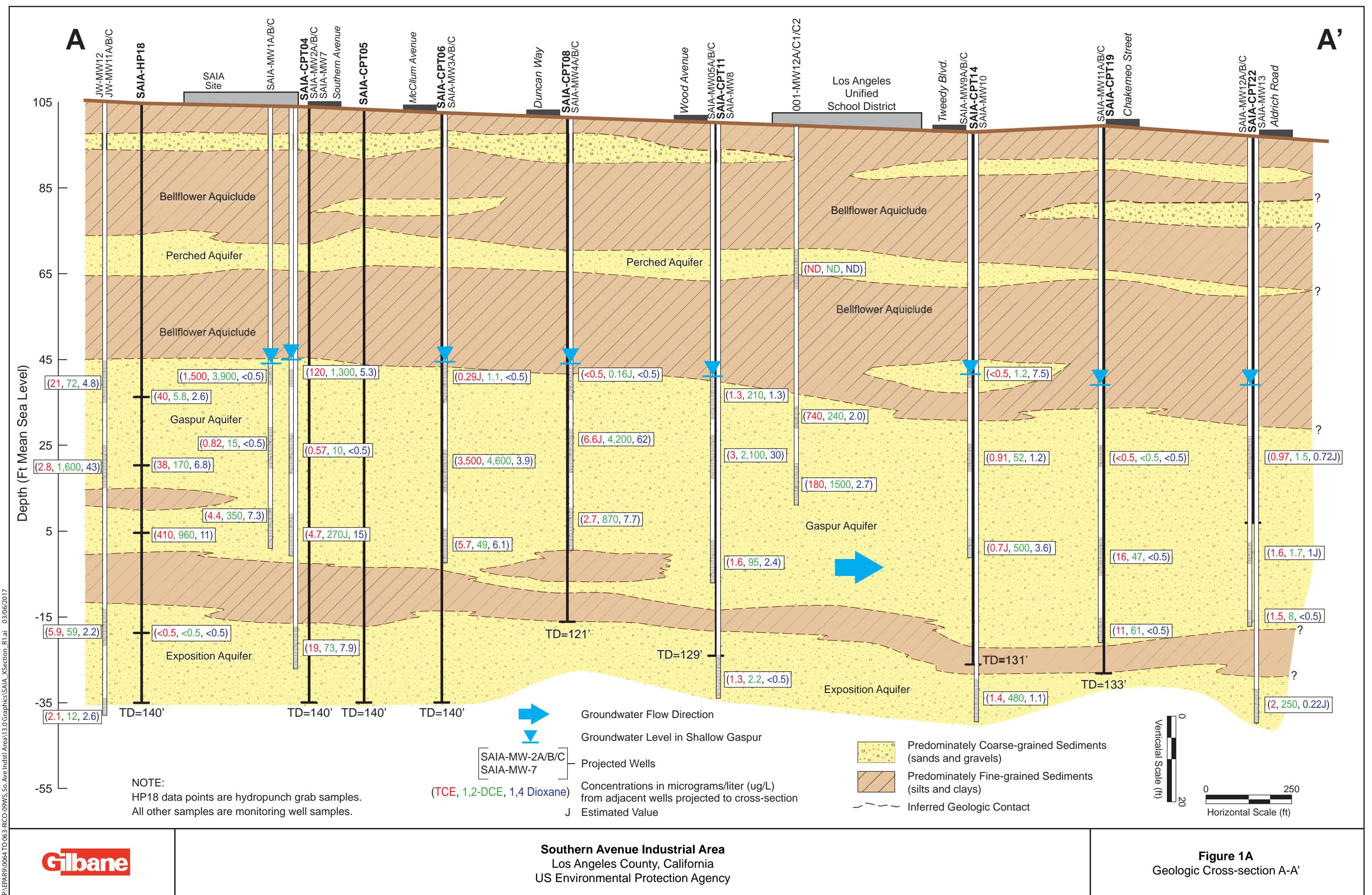
<#.#= not detected at the indicated reporting limit

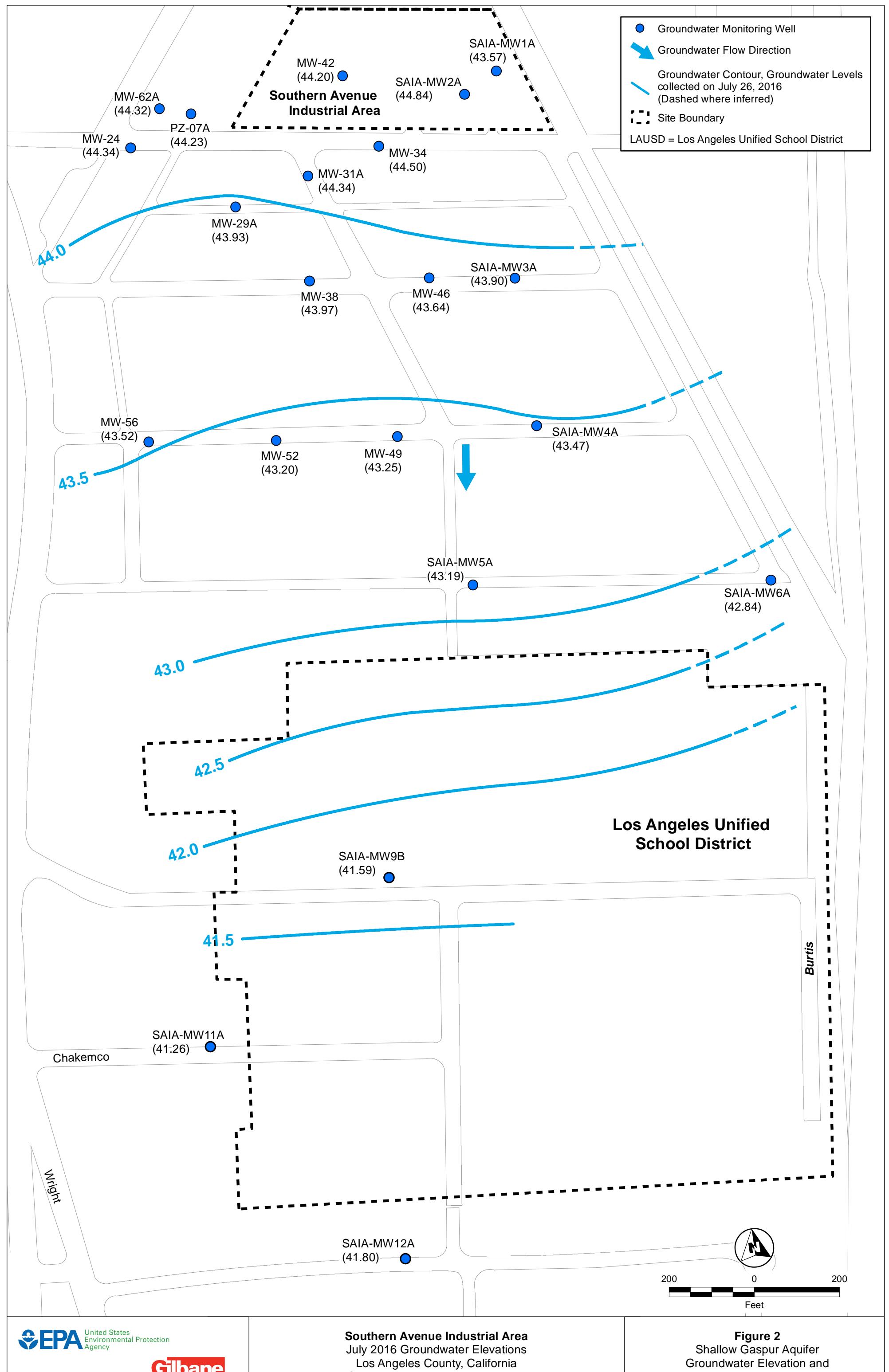
bgs = feet below ground surface

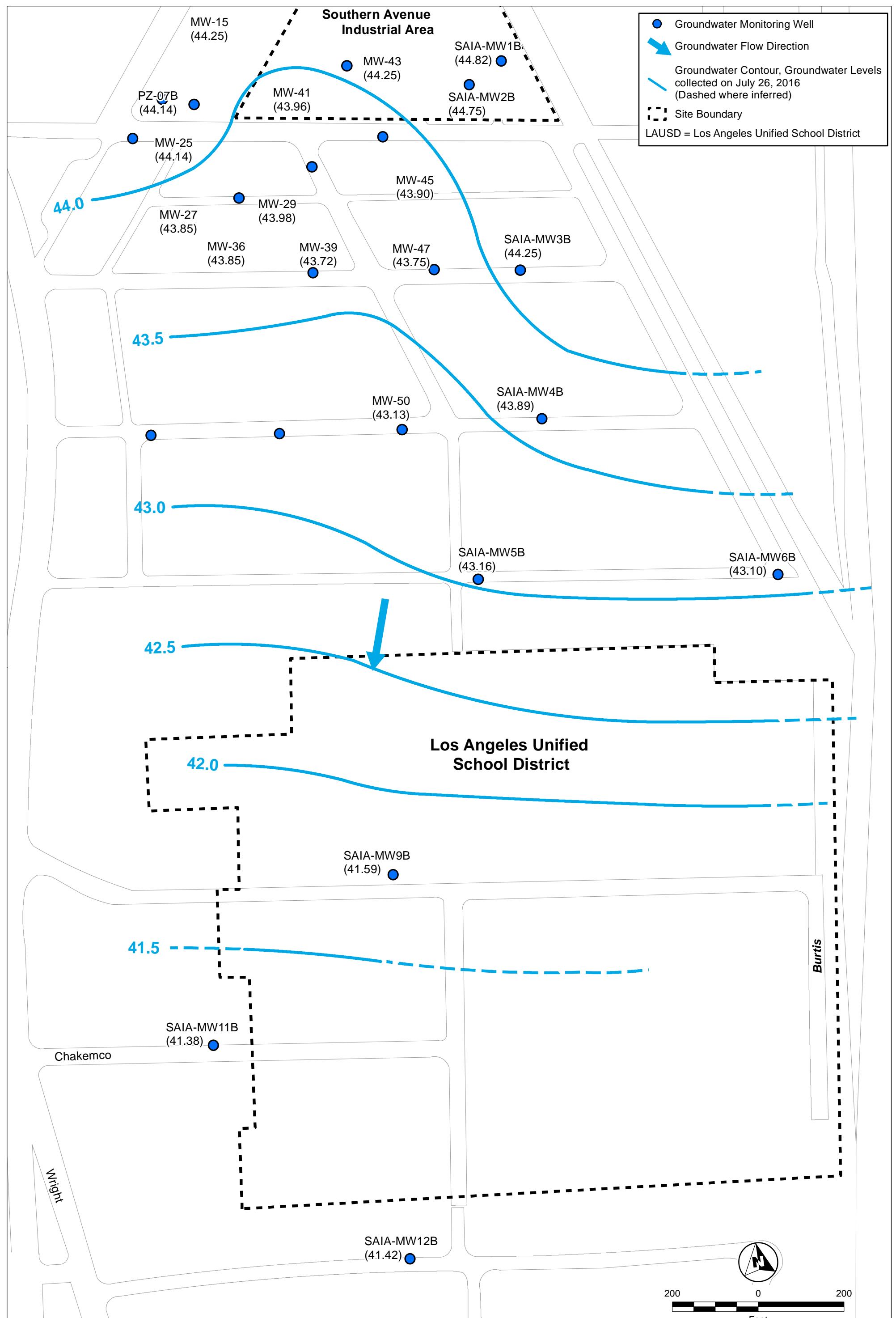
J = estimated value

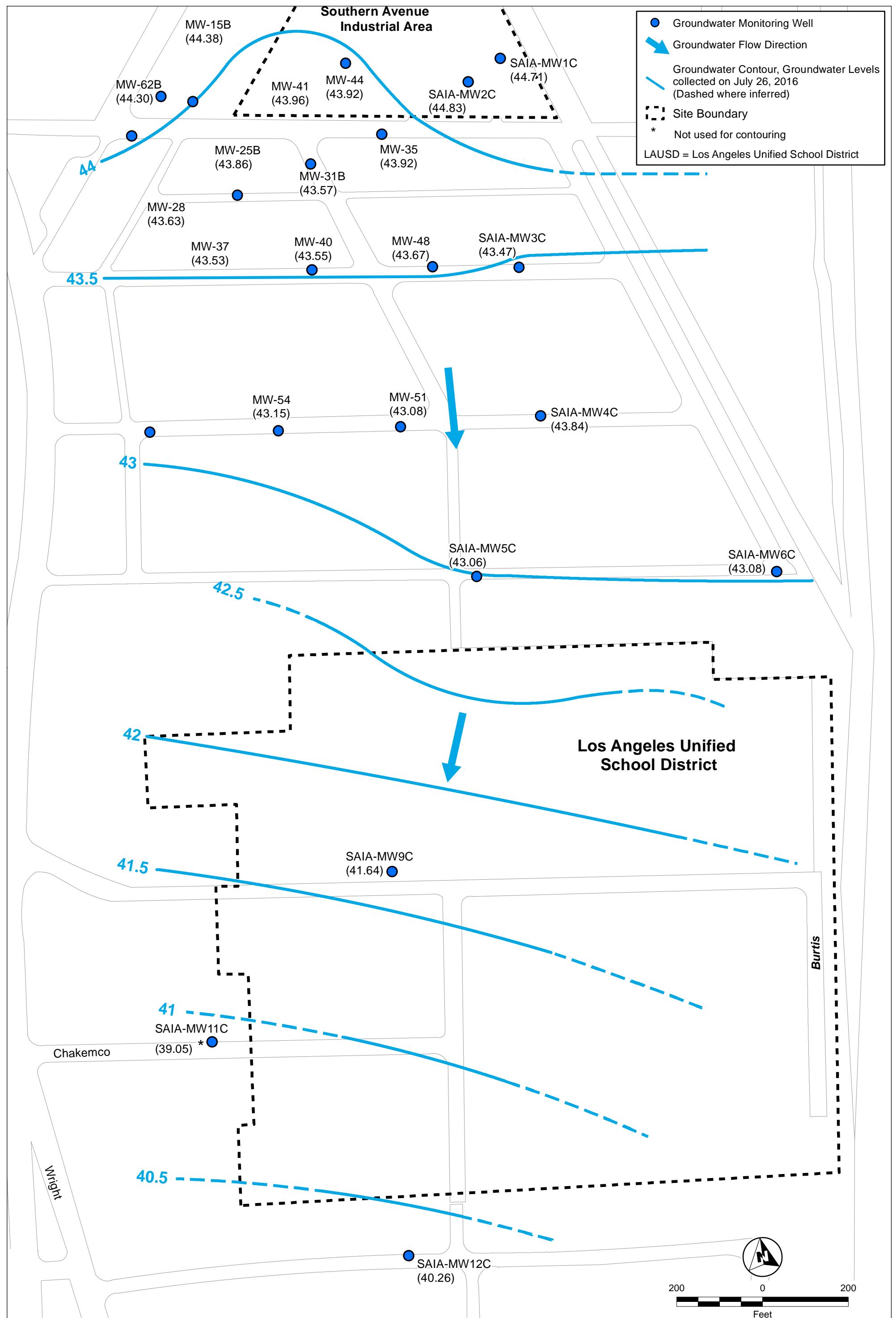
FIGURES

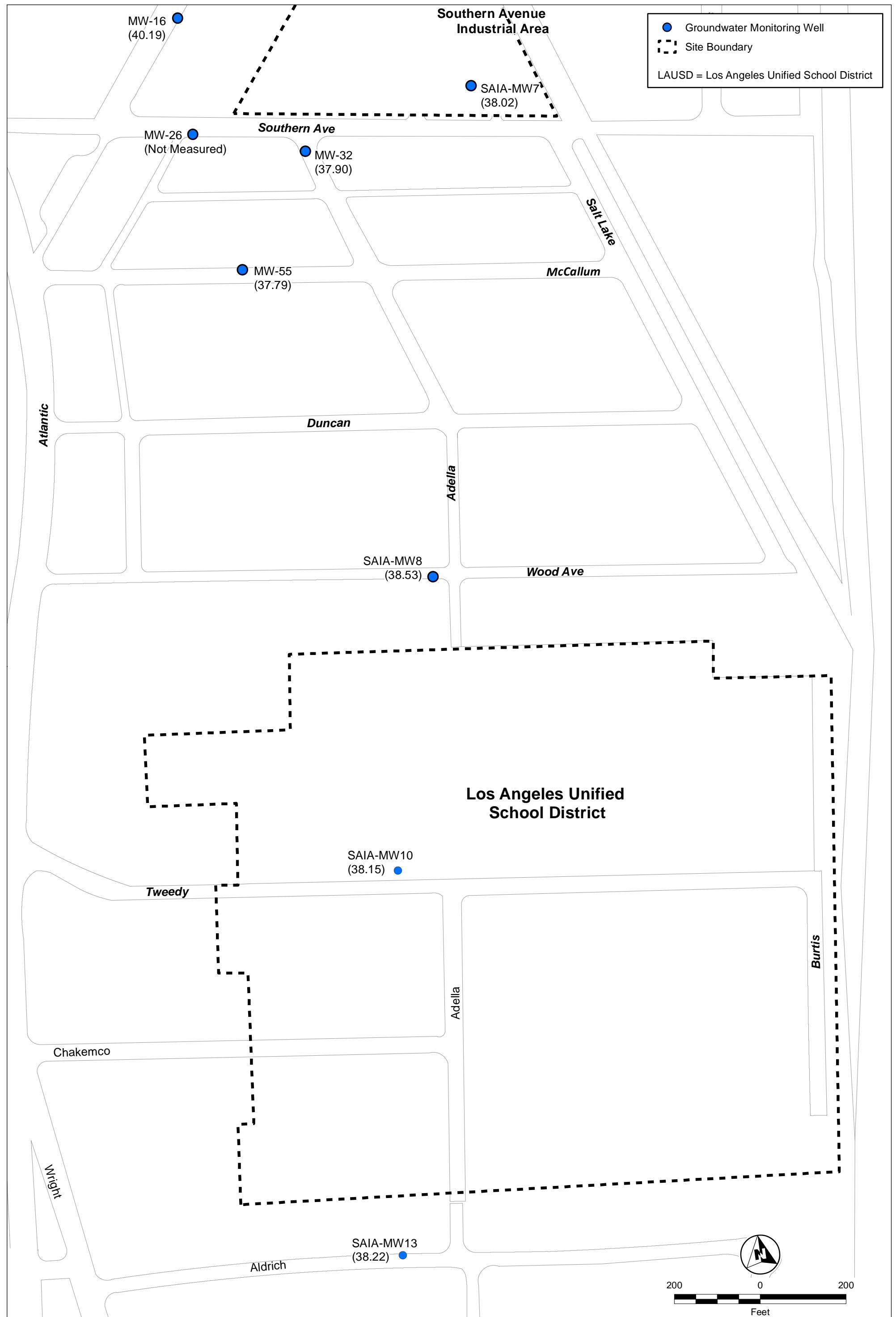


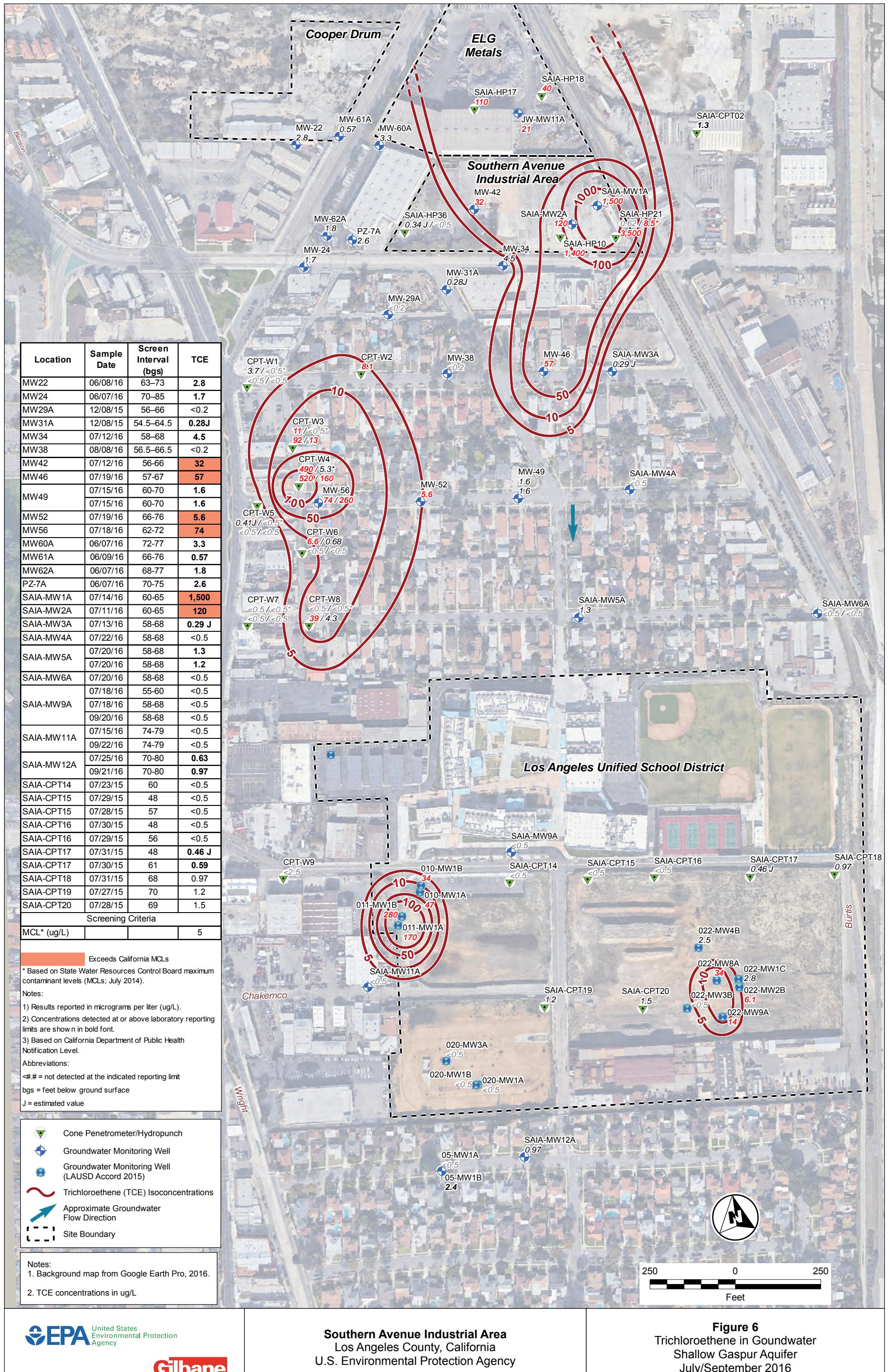


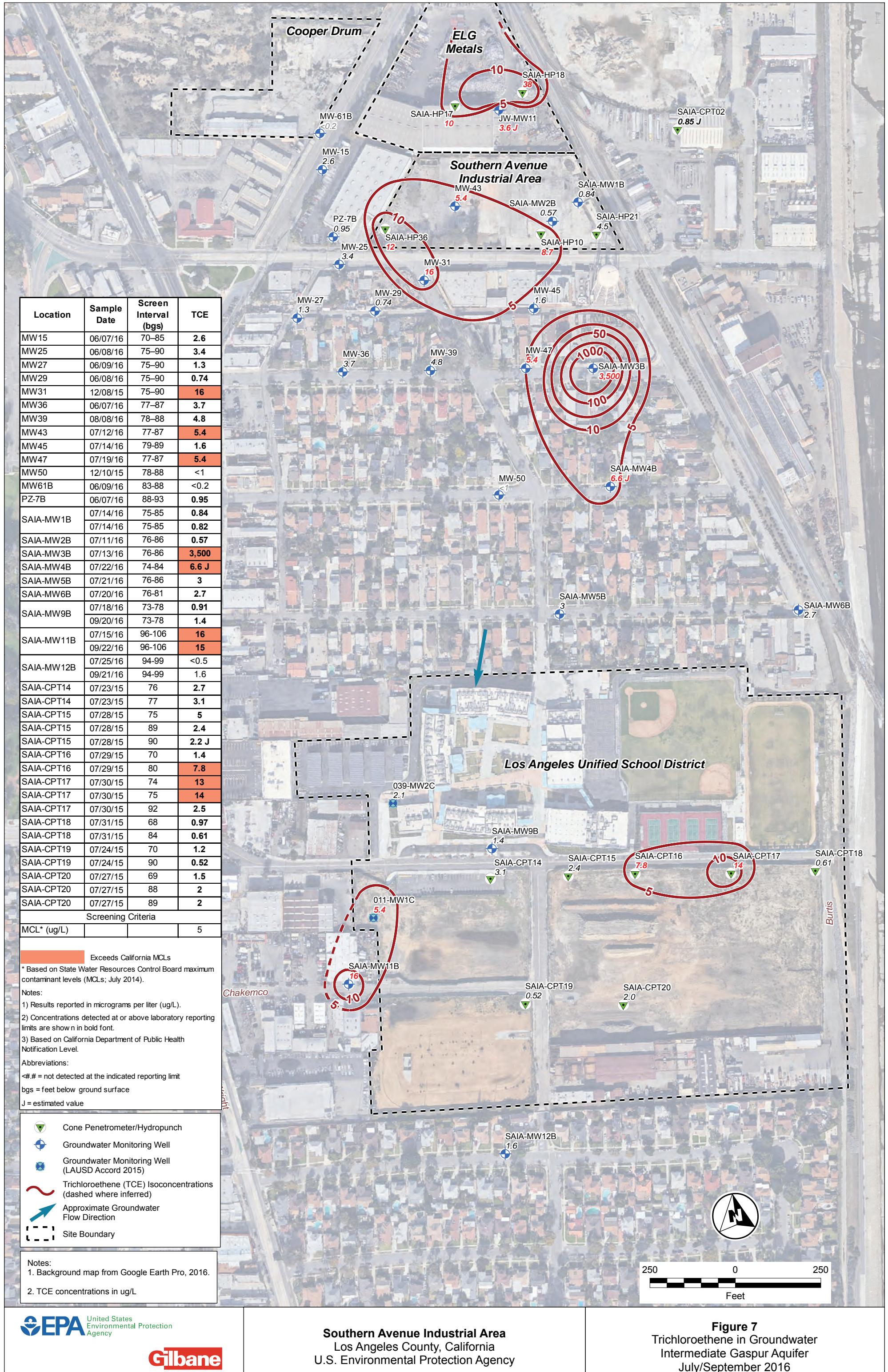


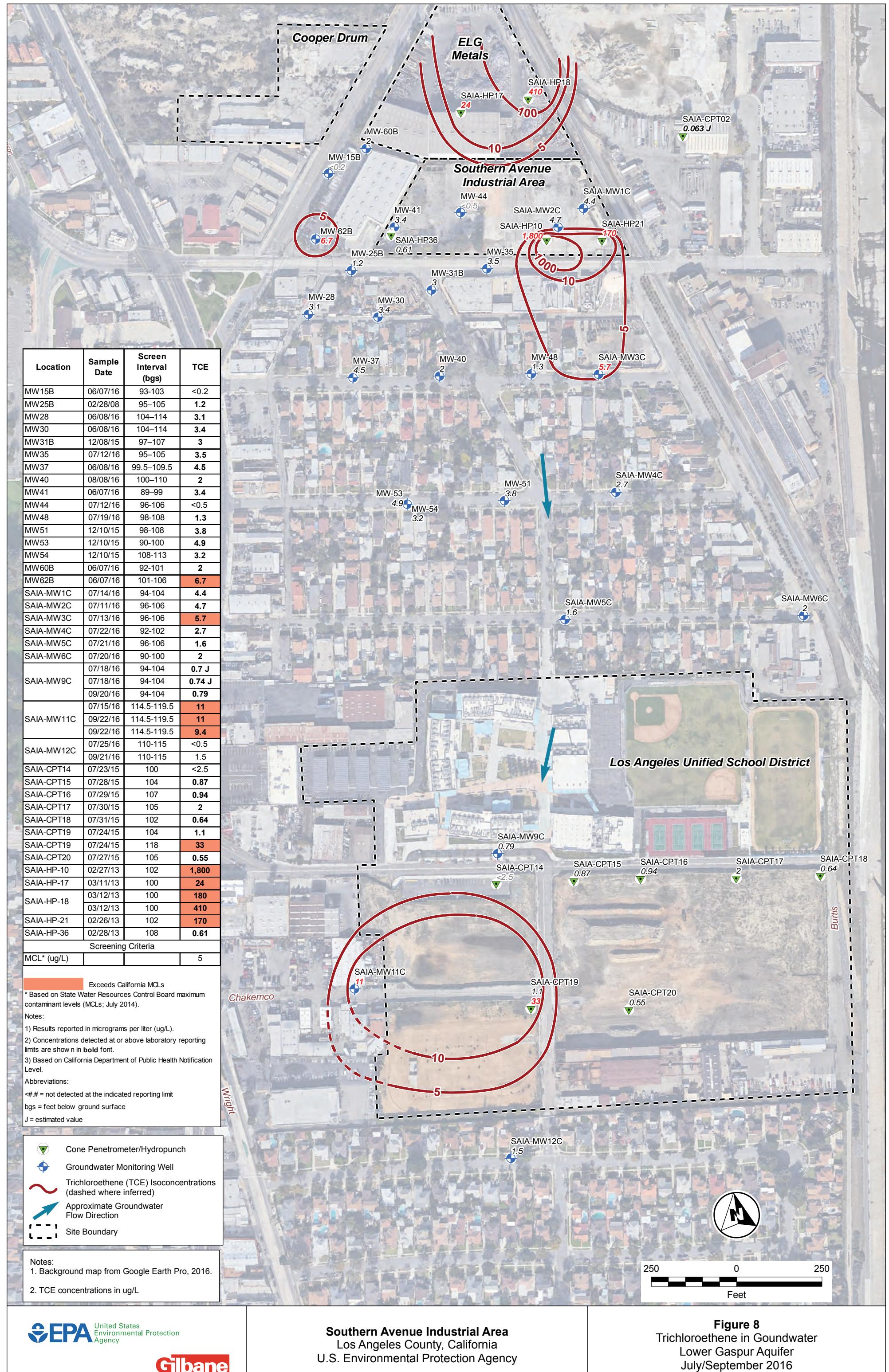


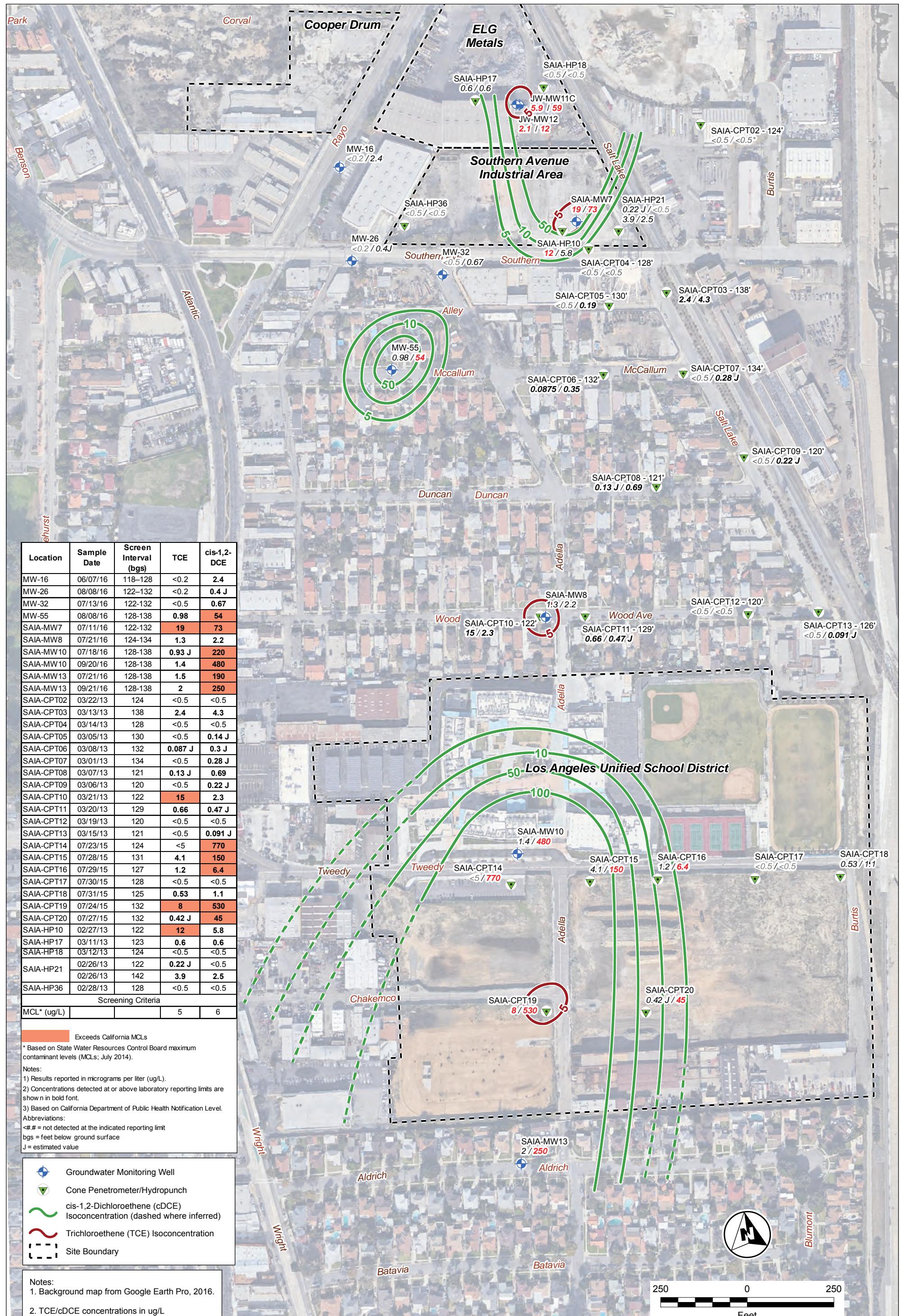


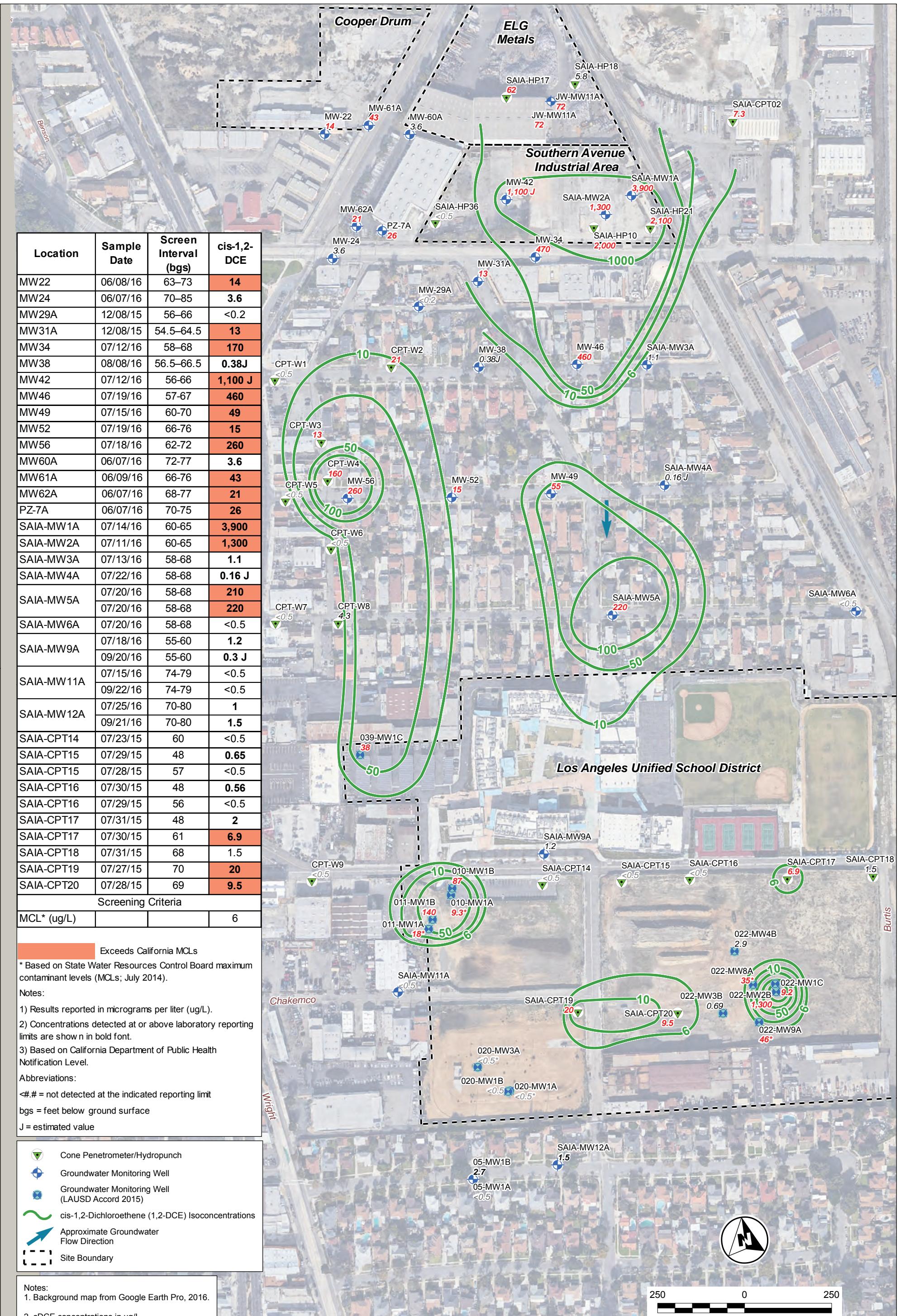


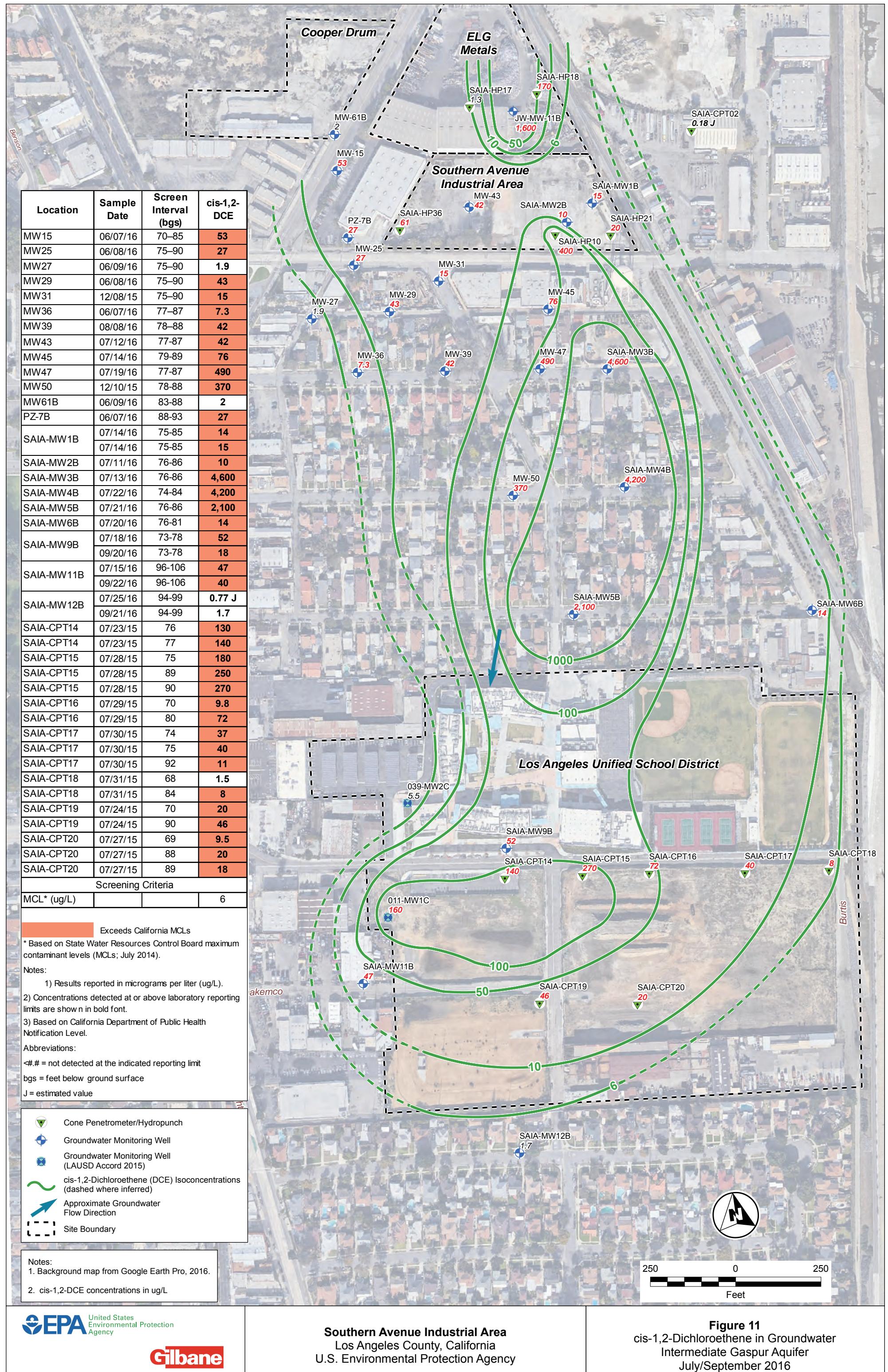


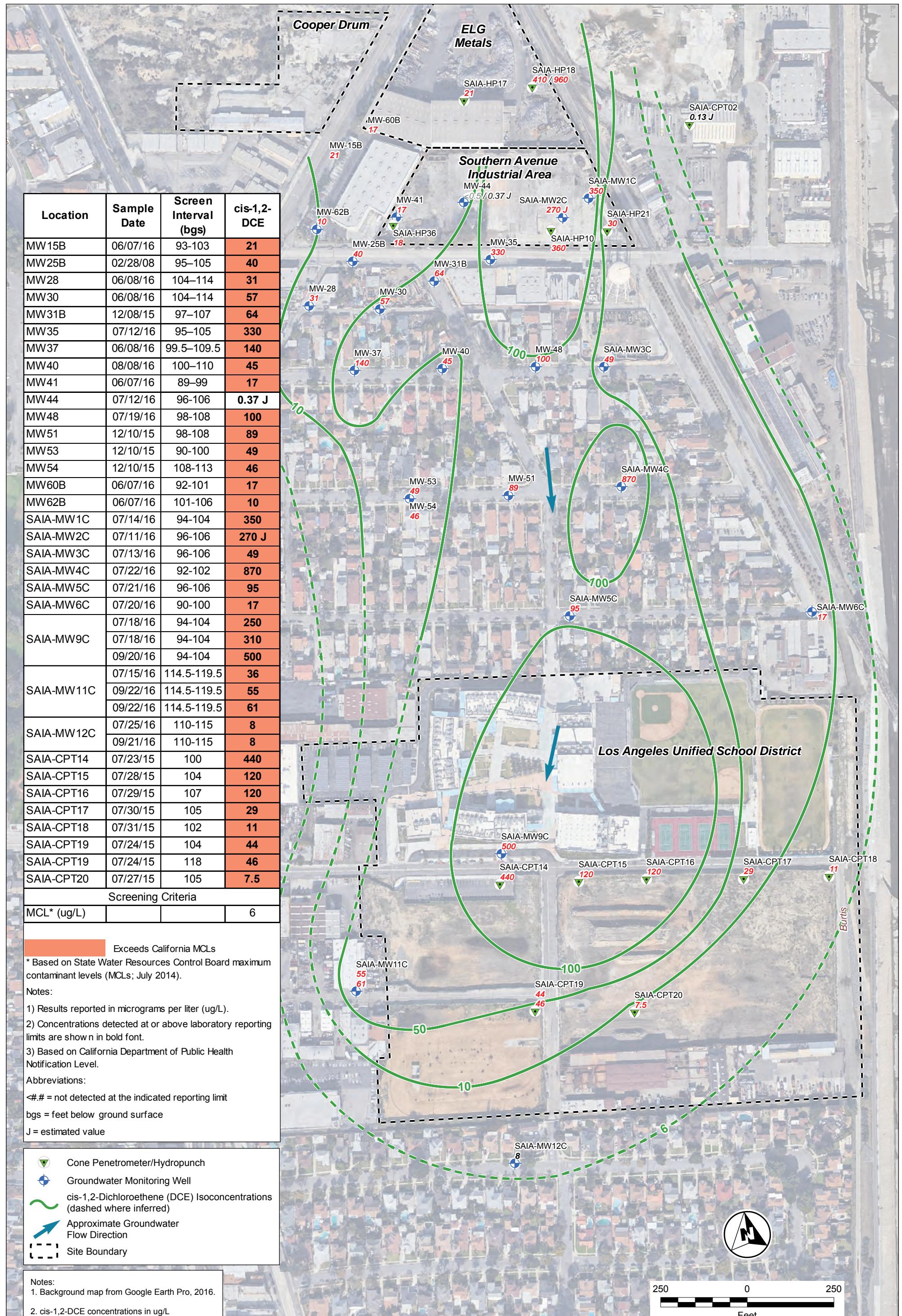


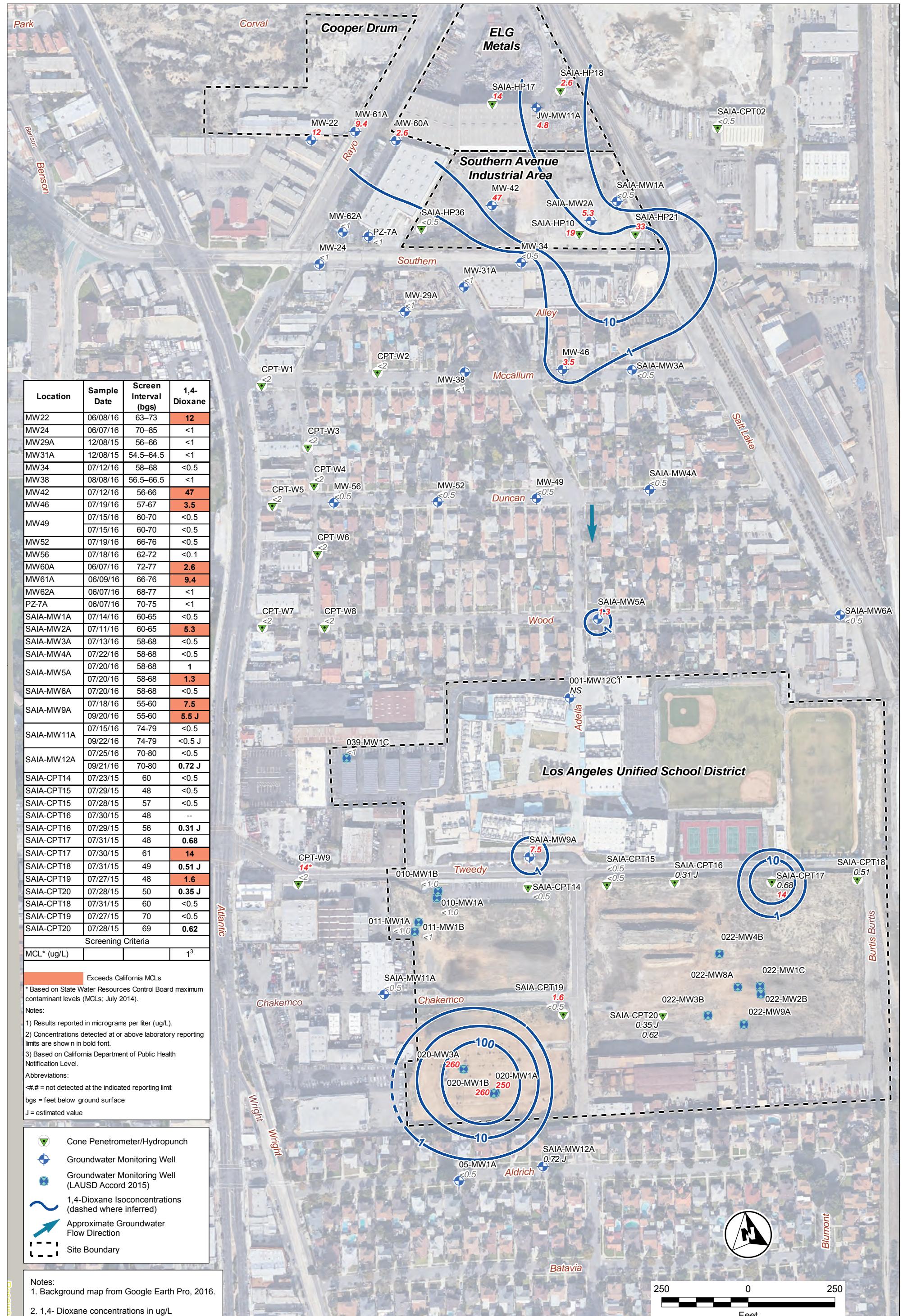


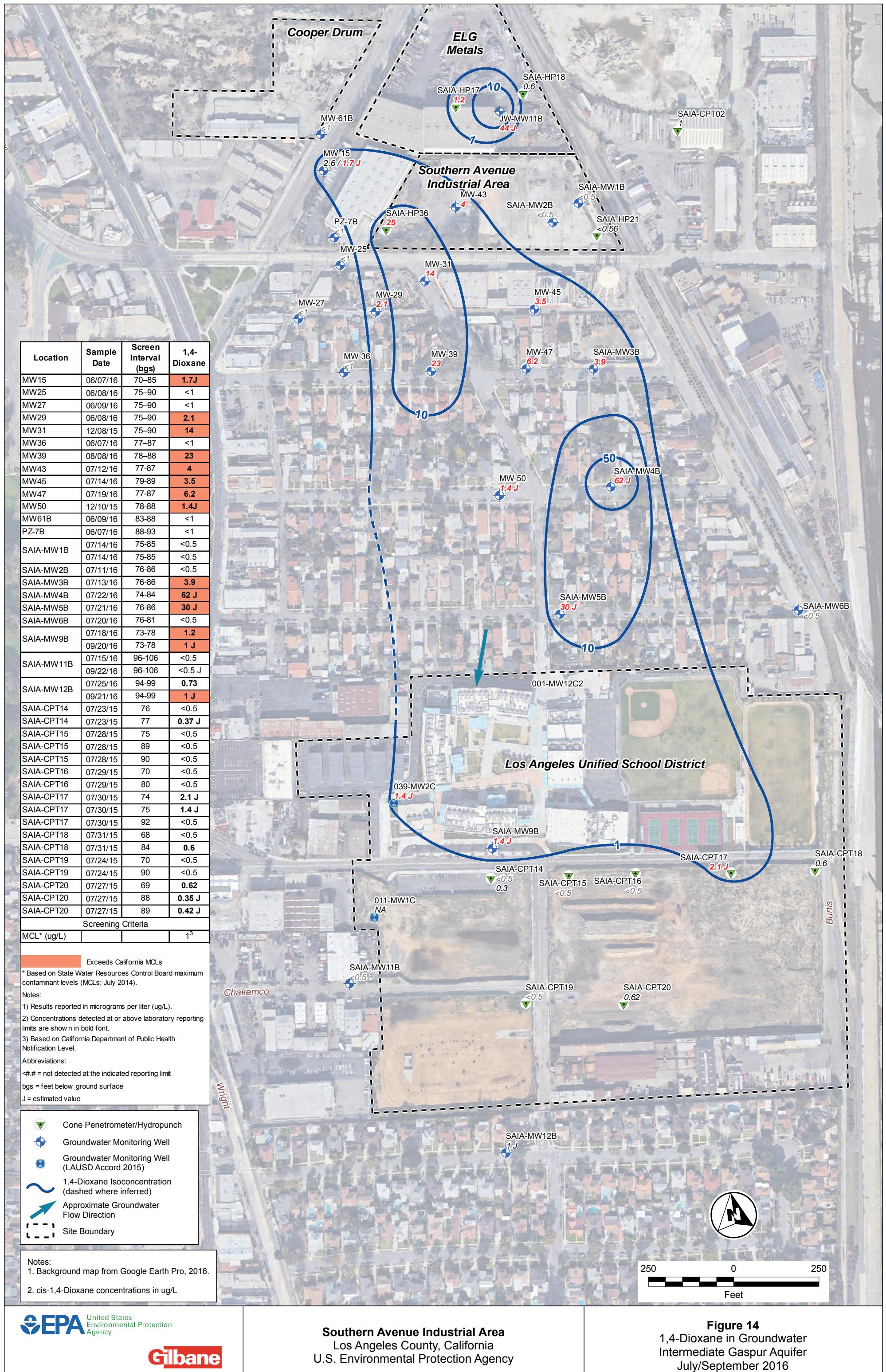


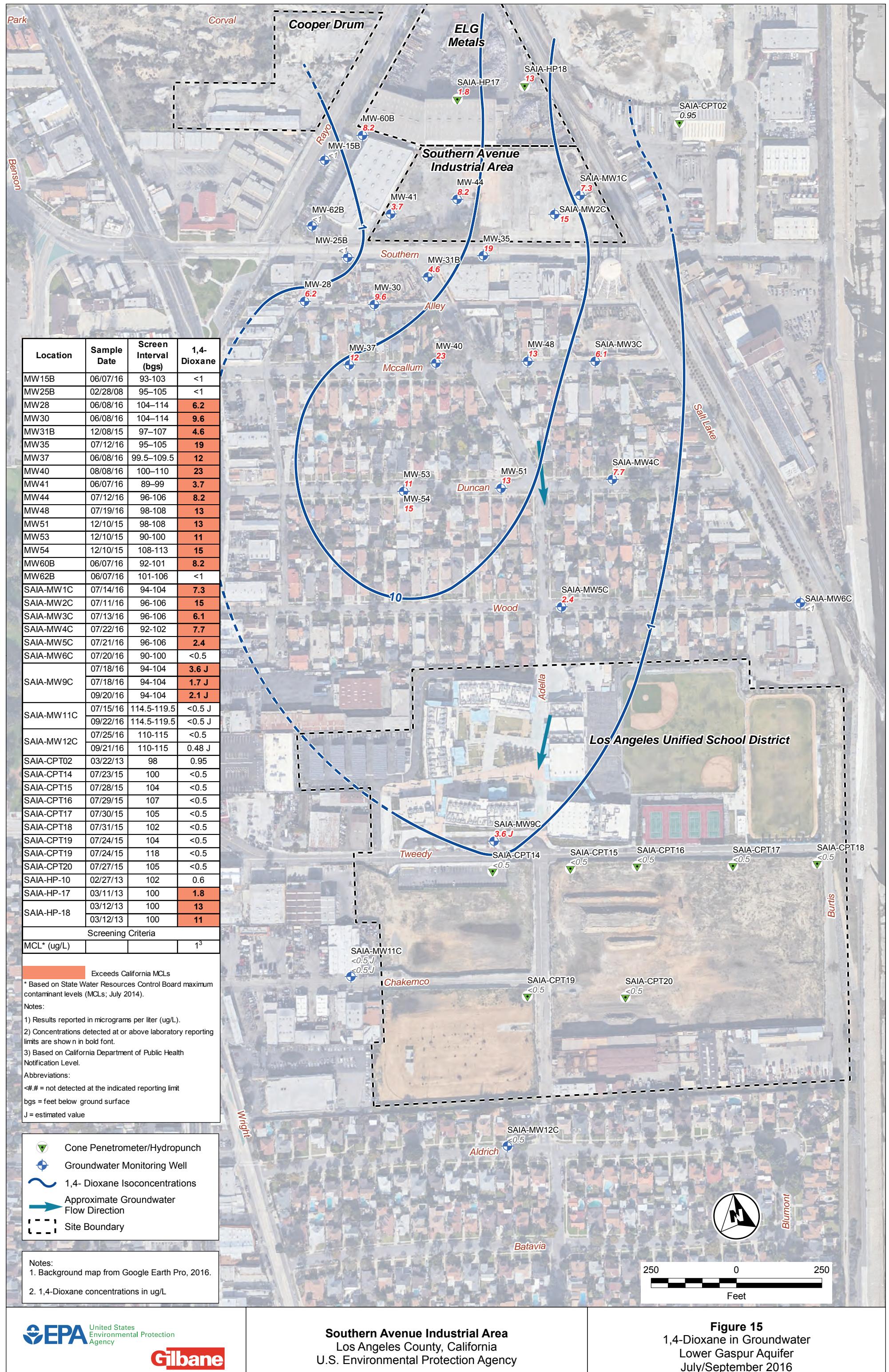


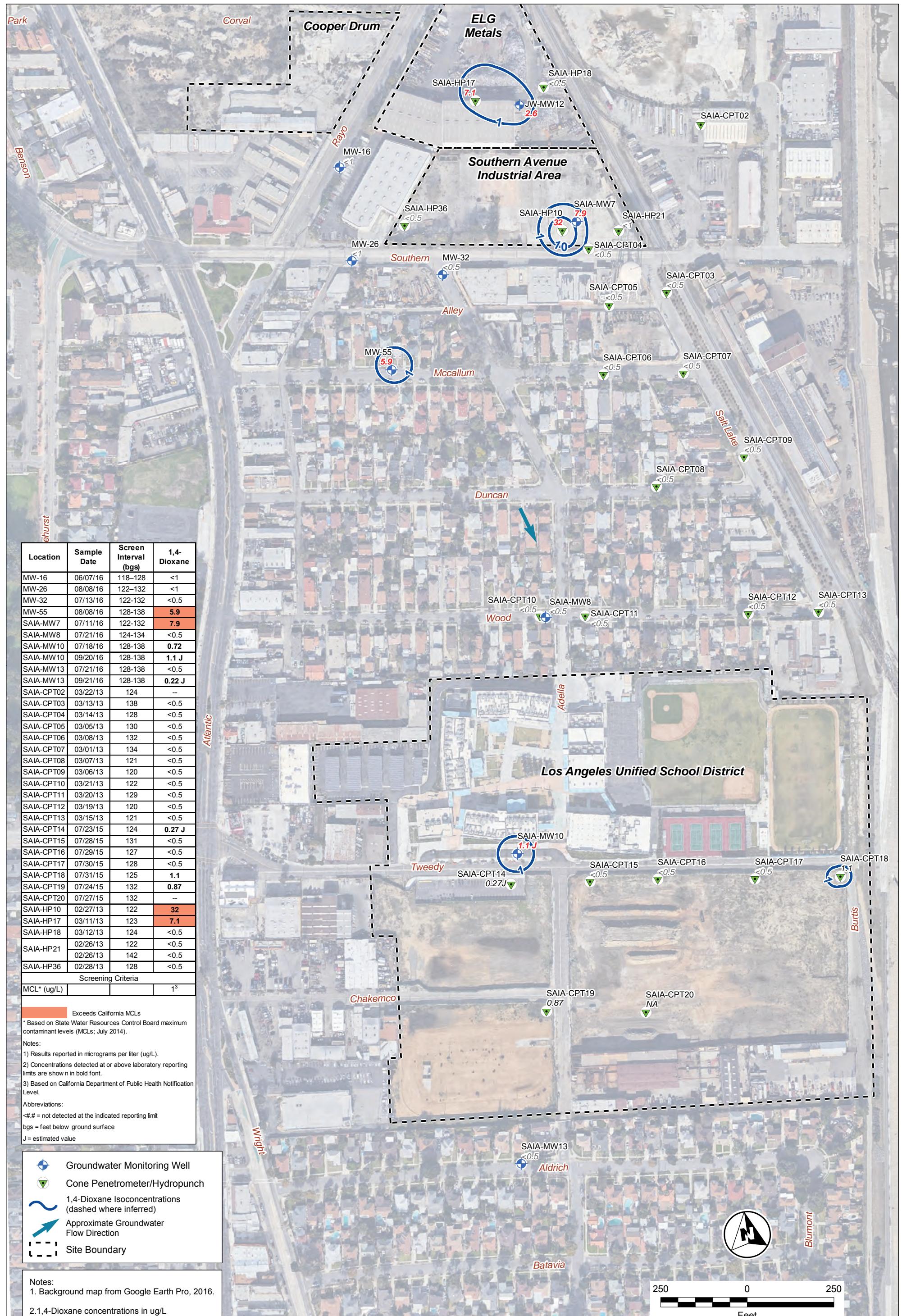














United States
Environmental Protection
Agency

Gilbane

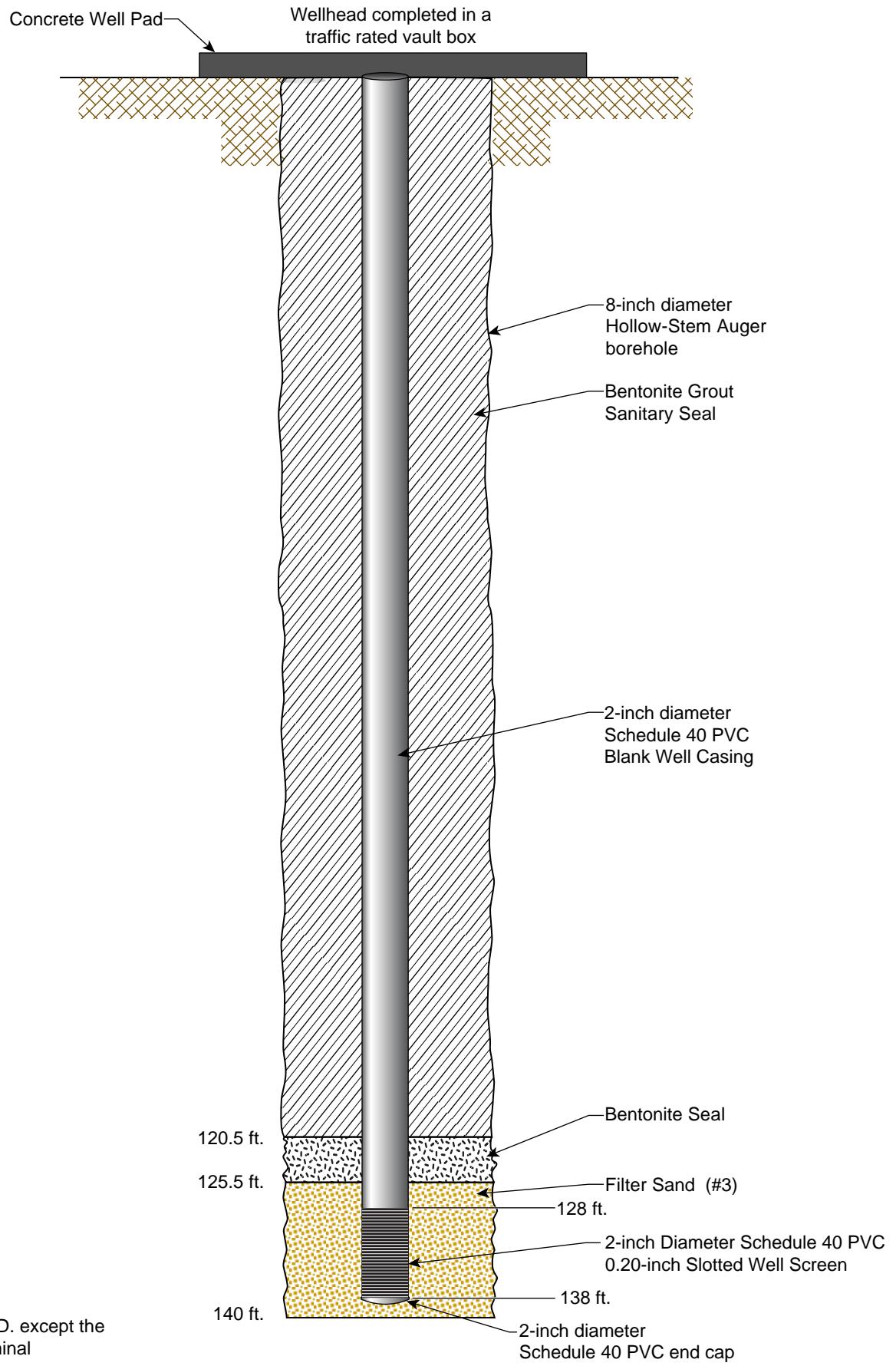
Southern Avenue Industrial Area
Los Angeles County, California
U.S. Environmental Protection Agency

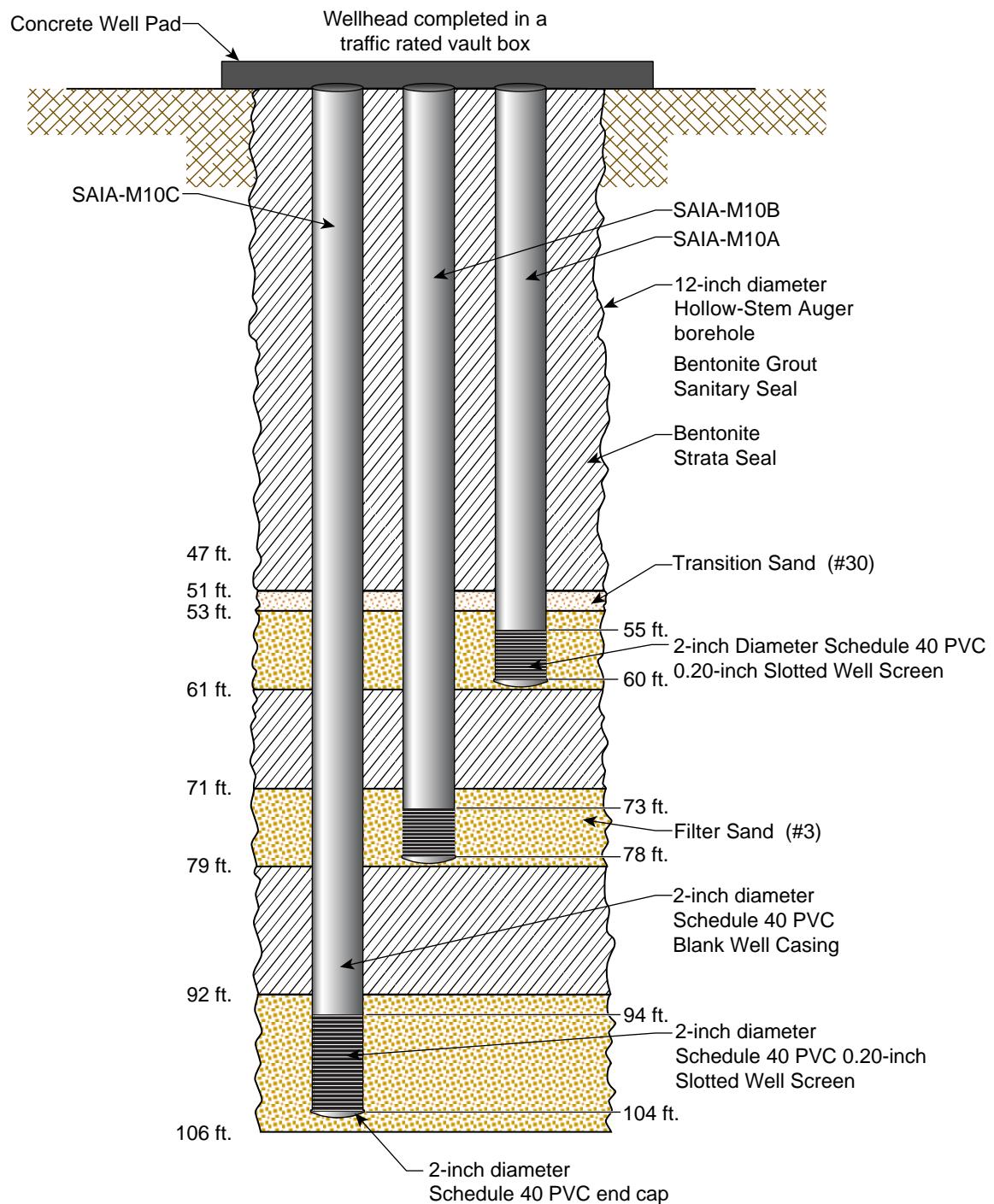
Figure 17
Proposed
Groundwater Sampling Borings



Attachment 1

As-Built Drawings for New Wells and CPT/Boring Logs



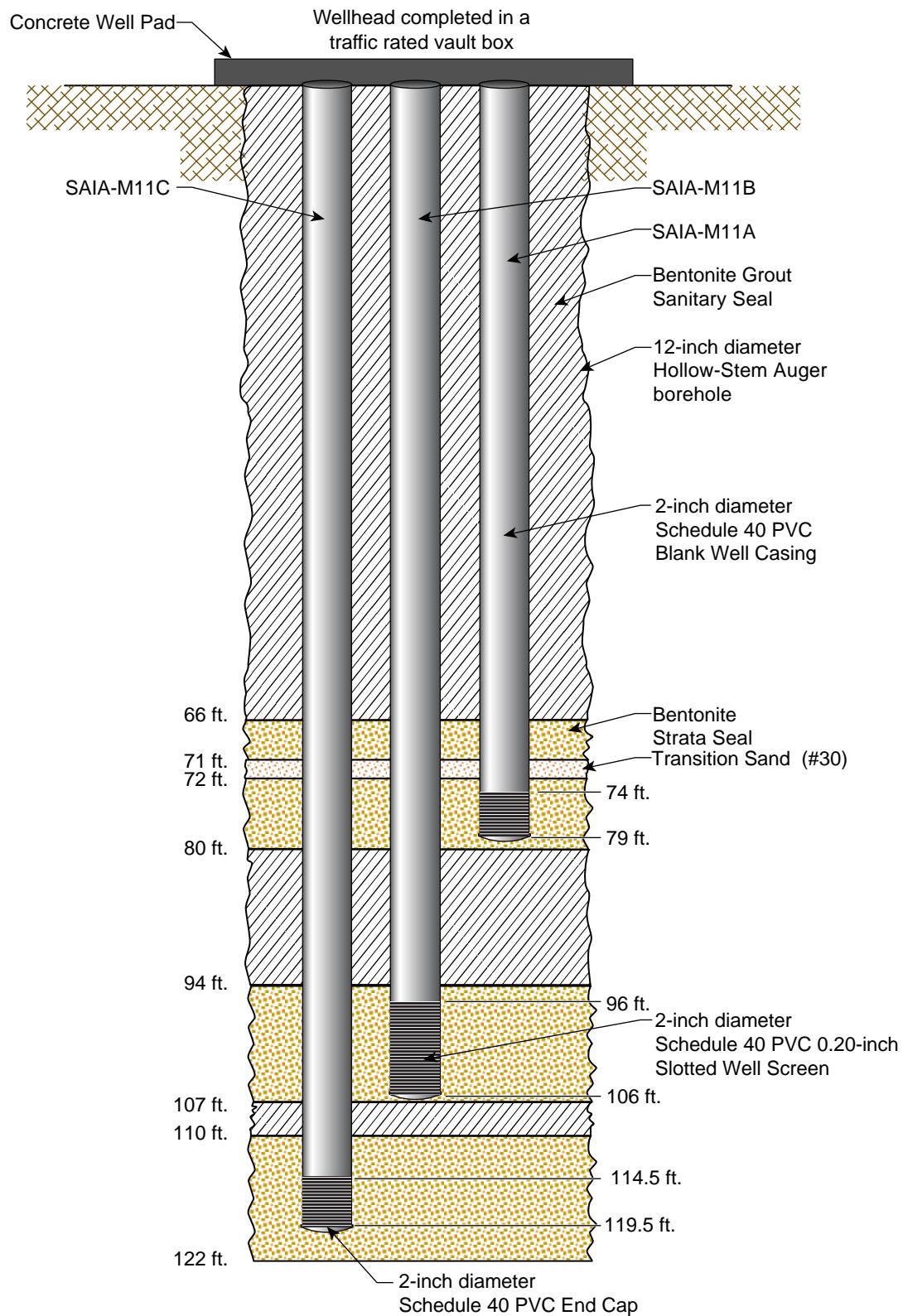


Notes:

Scale is Approximate

All pipe diameters are O.D. except the well screen, which is nominal

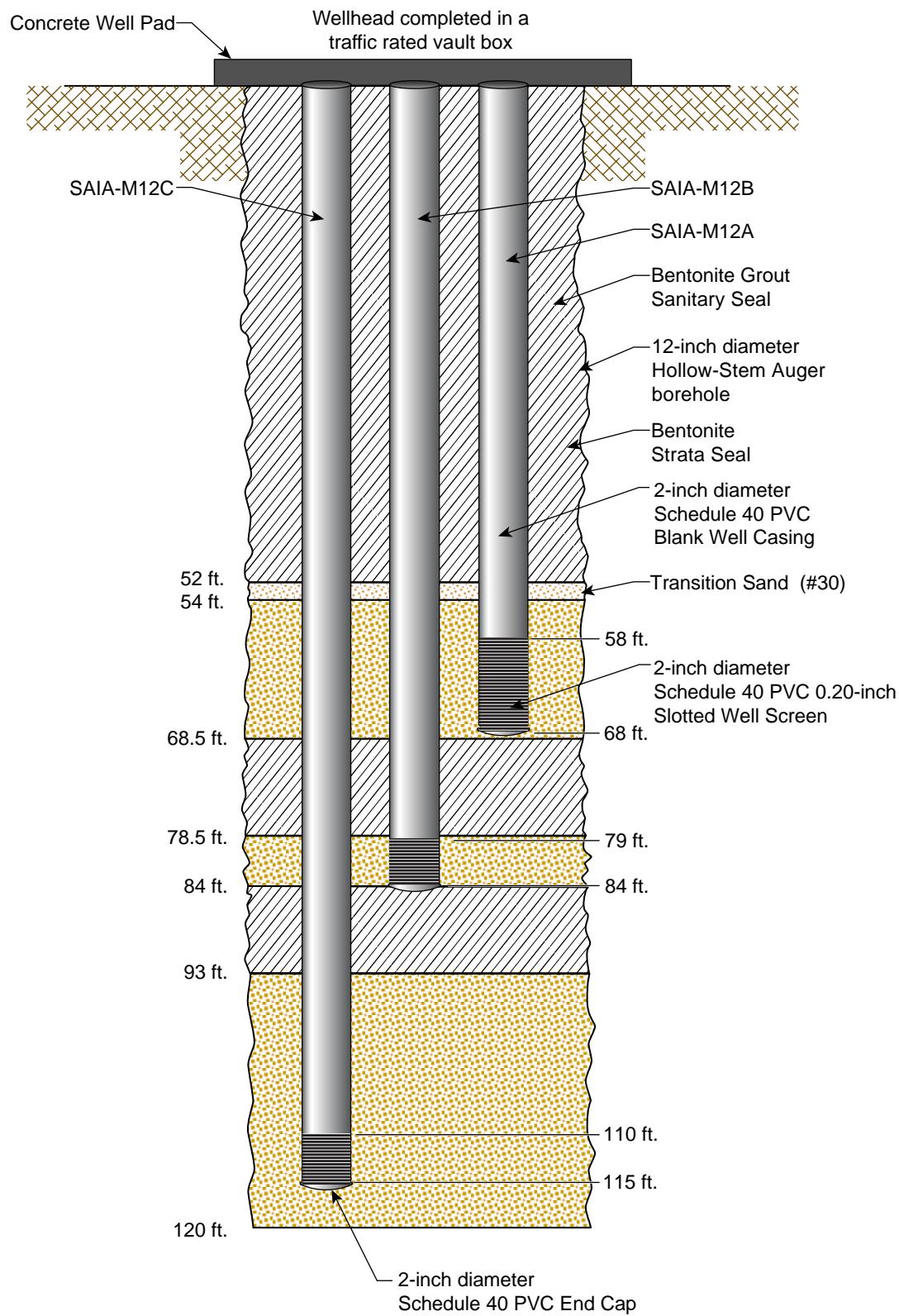
PVC - polyvinyl chloride



Notes:

Scale is Approximate

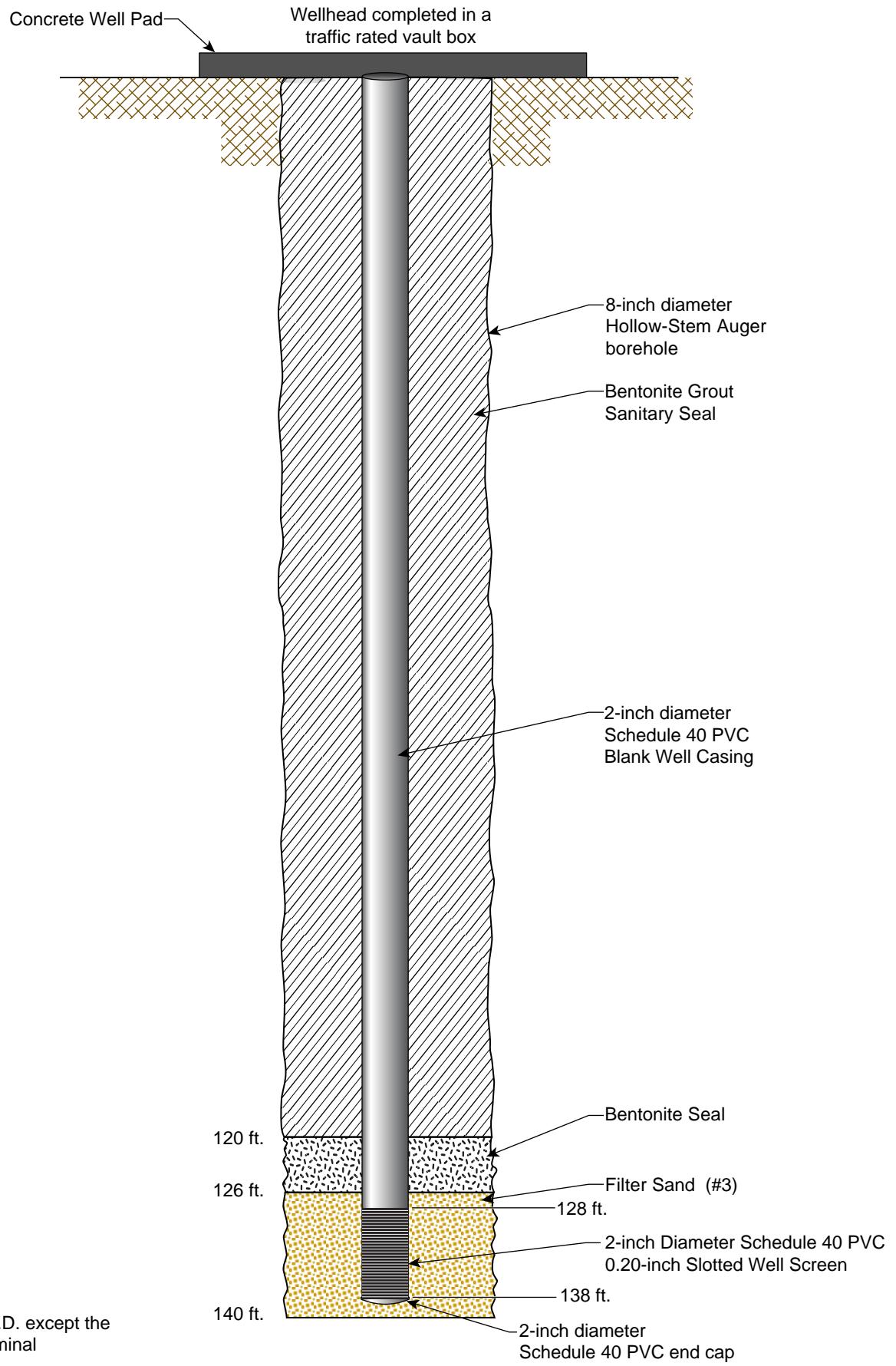
All pipe diameters are O.D. except the well screen, which is nominal
PVC - polyvinyl chloride

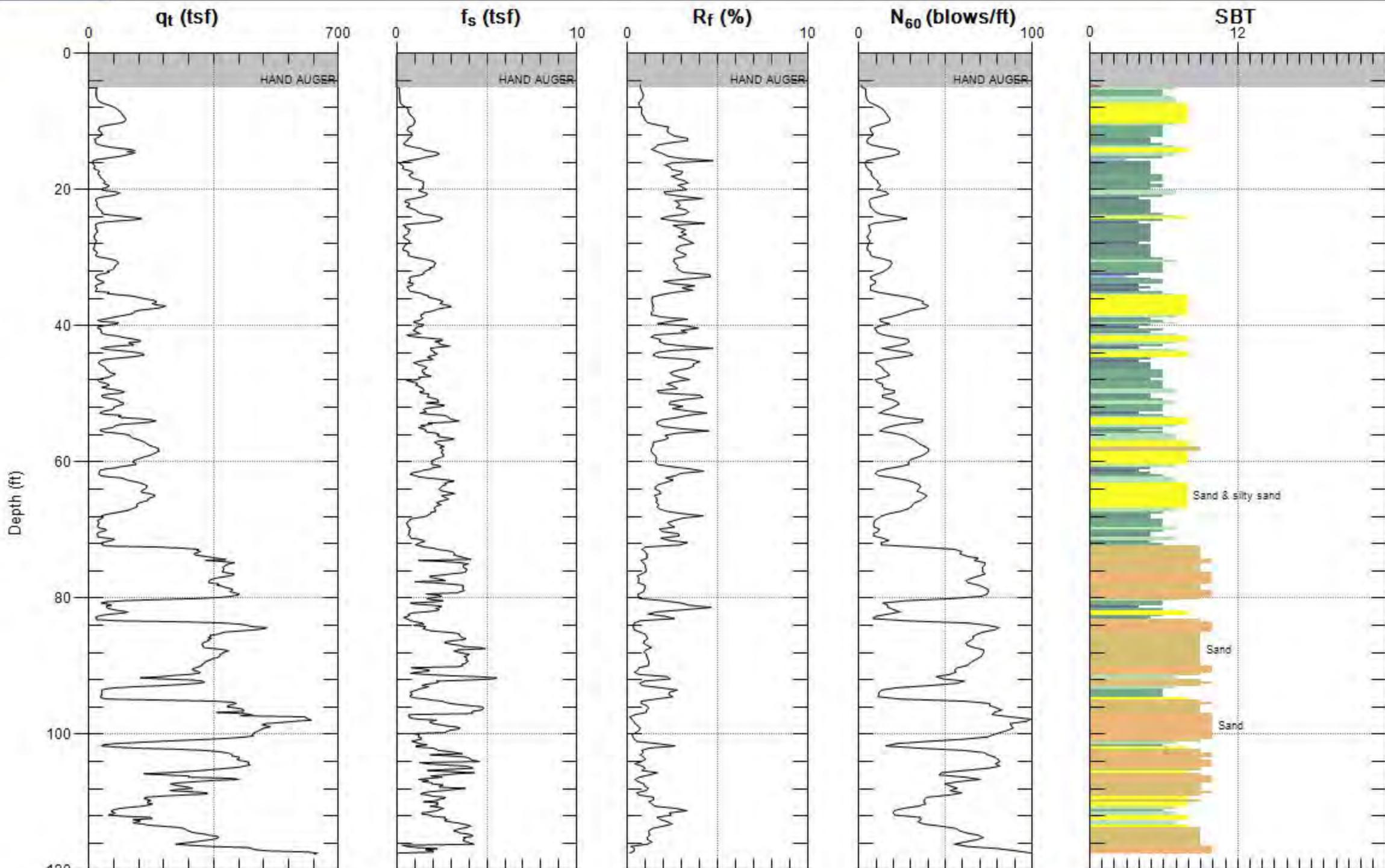


Notes:

Scale is Approximate

All pipe diameters are O.D. except the
well screen, which is nominal
PVC - polyvinyl chloride

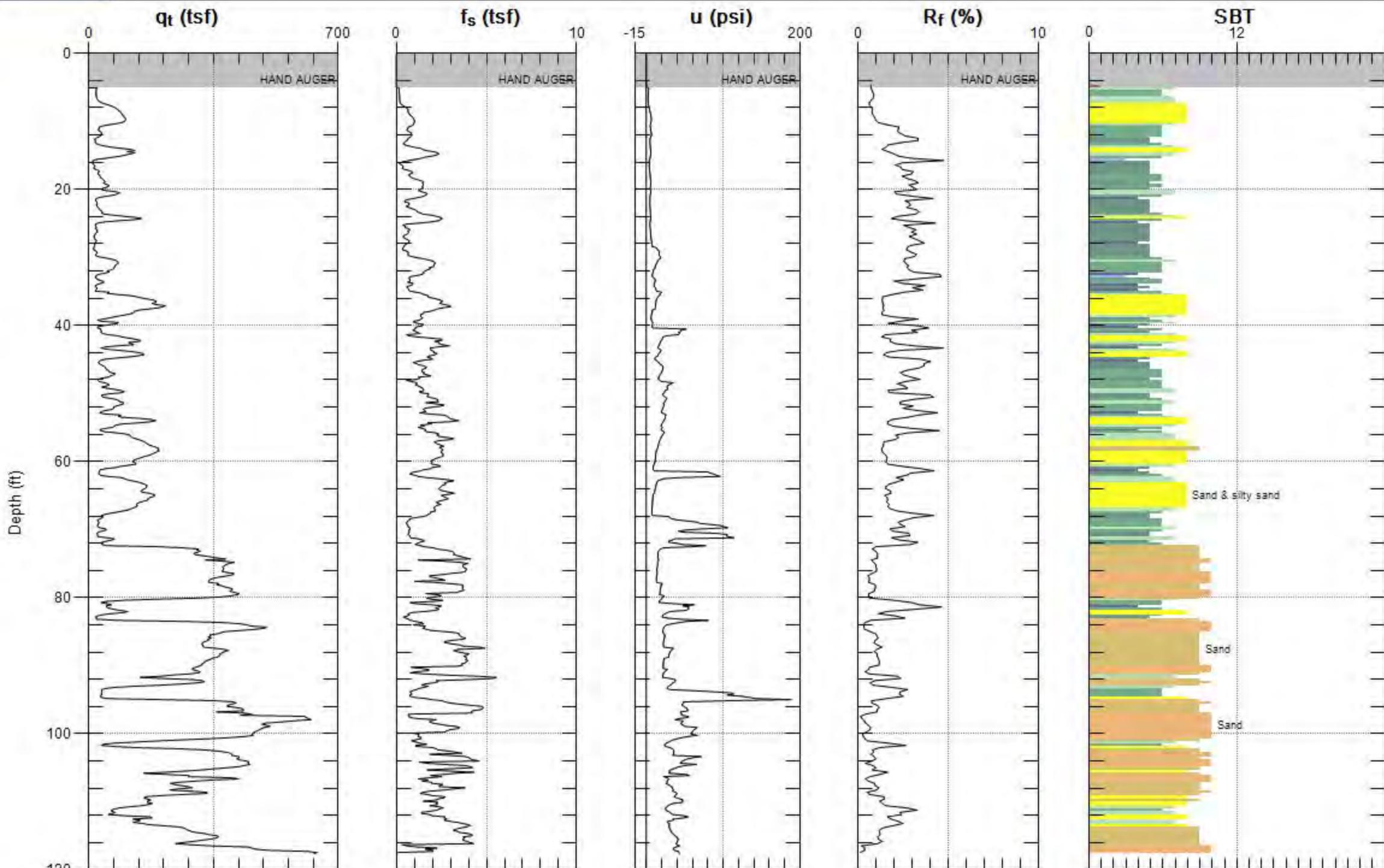




Max. Depth: 117.618 (ft)

Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)



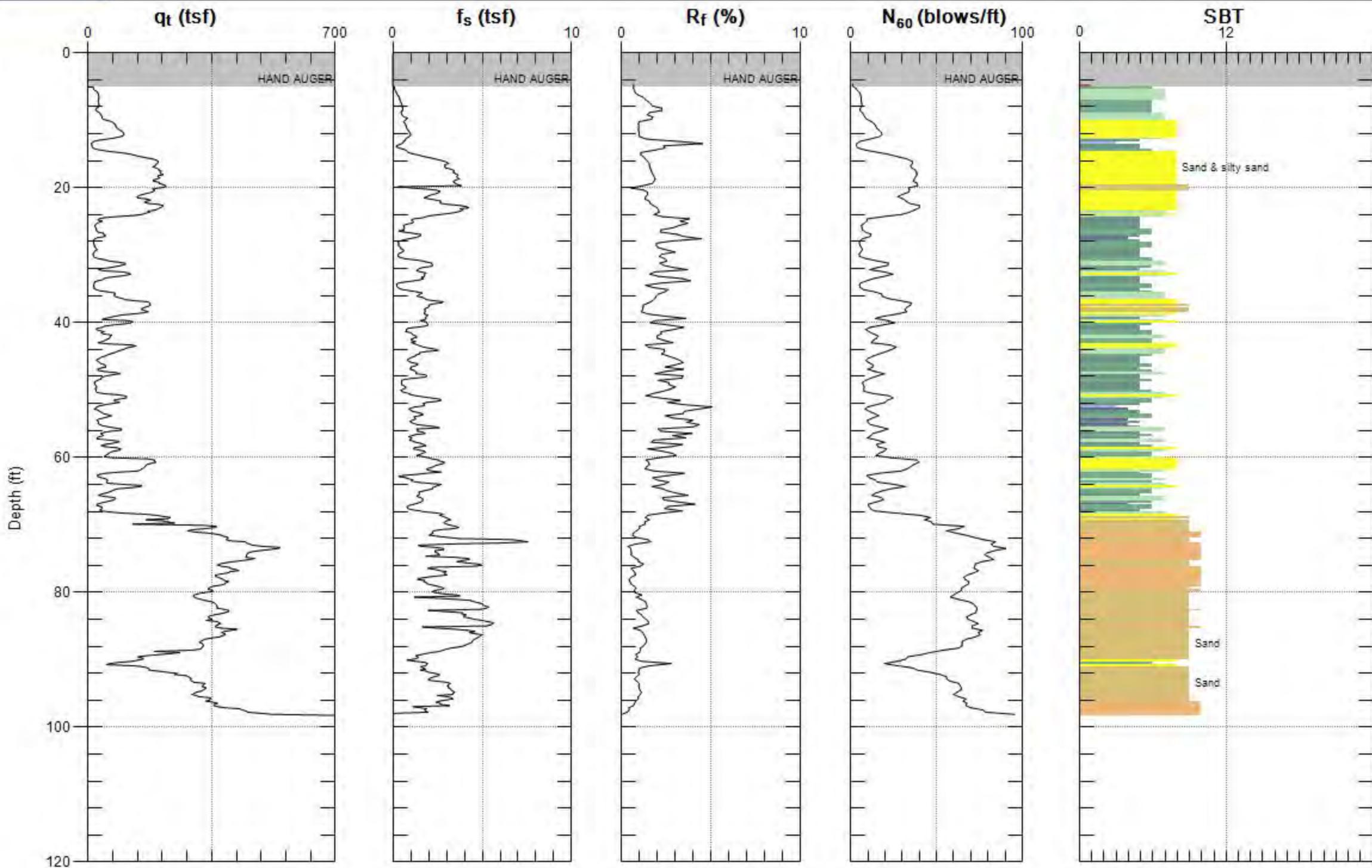
SBT: Soil Behavior Type (Robertson 1990)

Site: SAIA

Engineer: R.LEONG

Sounding: SAIA-CPT-22

Date: 12/31/2002 11:13



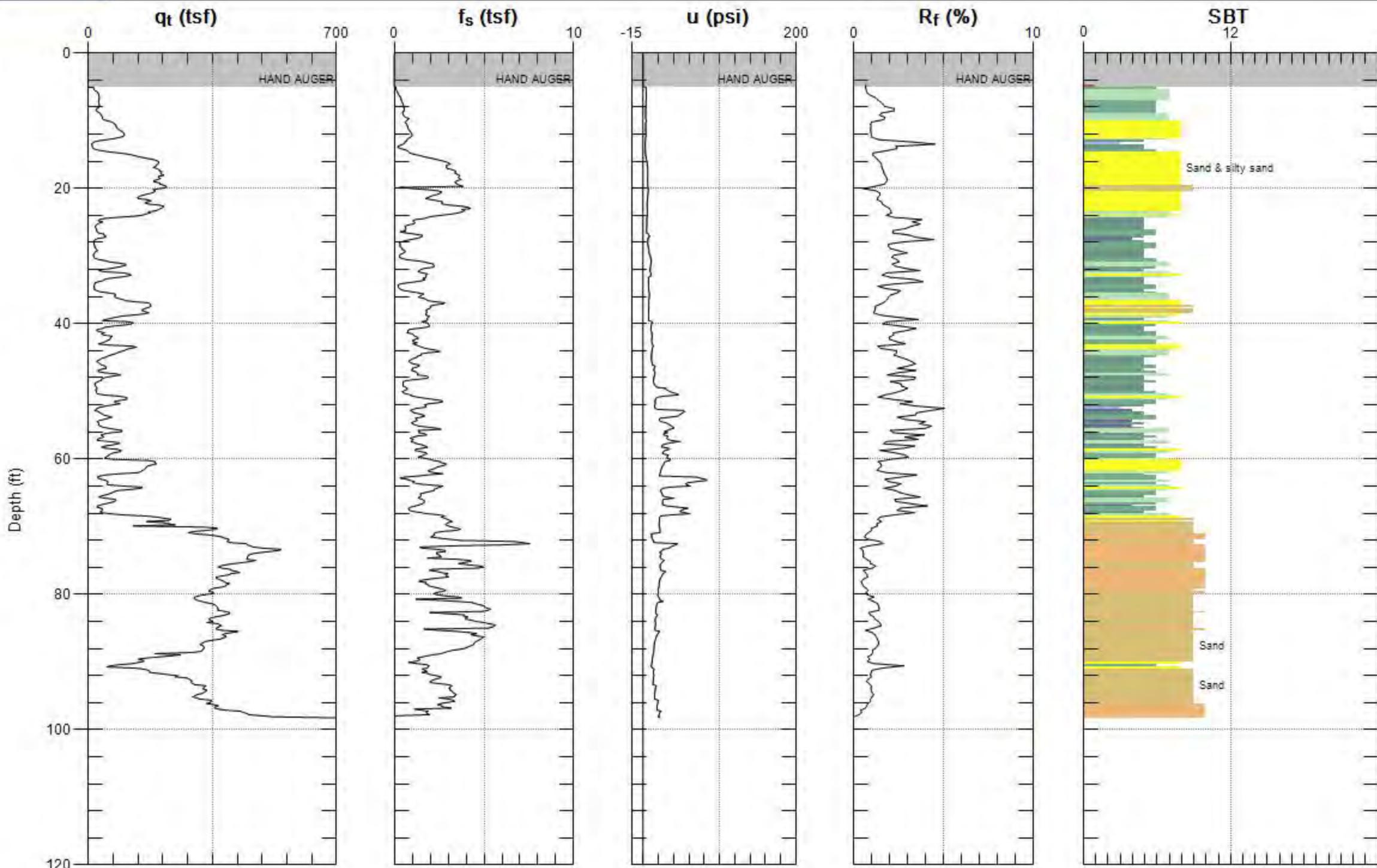
SBT: Soil Behavior Type (Robertson 1990)

Site: SAIA

Engineer: R.LEONG

Sounding: SAIA-CPT-22

Date: 12/31/2002 11:13



Max. Depth: 98.261 (ft)

Avg. Interval: 0.328 (ft)

SBT: Soil Behavior Type (Robertson 1990)

Project SAIA Superfund Site

Logged By R. LEONG

Boring No. SAIA-MW13

Project Number 1163 006400

Date Drilled 06/20/2016

Sheet 1 of 1

Location ALDRICH ROAD

Total Depth 130'

Surface Elevation N/A

Boring Diameter 8"

Depth (Feet)	Sample Interval	Blow Counts	PID (ppm) B-zones/Item/Sample	Water Level	Well Construction	Lithology / USCS	DESCRIPTION
100	X X X X	0			SW		medium-coarse sand Well graded sand, light gray, dense, wet, no odor
105	X X X X	0			SW		
110	X X X X	0			SP		Poorly graded sand, light gray, dense, wet, no odor
115	X X X X	0			SM		silty sand, gray, fine sand, medium dense, no odor
120	X X X X	0			ML		sandy silt/clayey silt, dark gray, stiff, wet, no odor
125	X X X X	0		13'			trace gravel at 124' fine-medium sand
130	X X X X	0		13'	SM		silty sand, dark gray, wet, no odor
							Driller reported feeling drilling through gravel 132-140' 132

Casing Diameter 2" Casing Length 128 From 0 To 128

Screen Size 0.02 Screen Length 10' From 128 To 138'

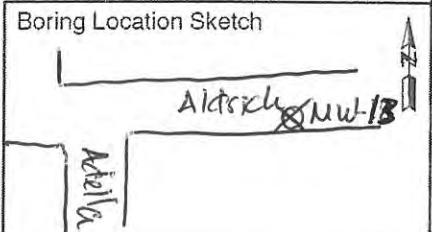
Sand Type #3 From 126 To 140

Bentonite Type From _____ To _____

Cement/GROUT From _____ To _____

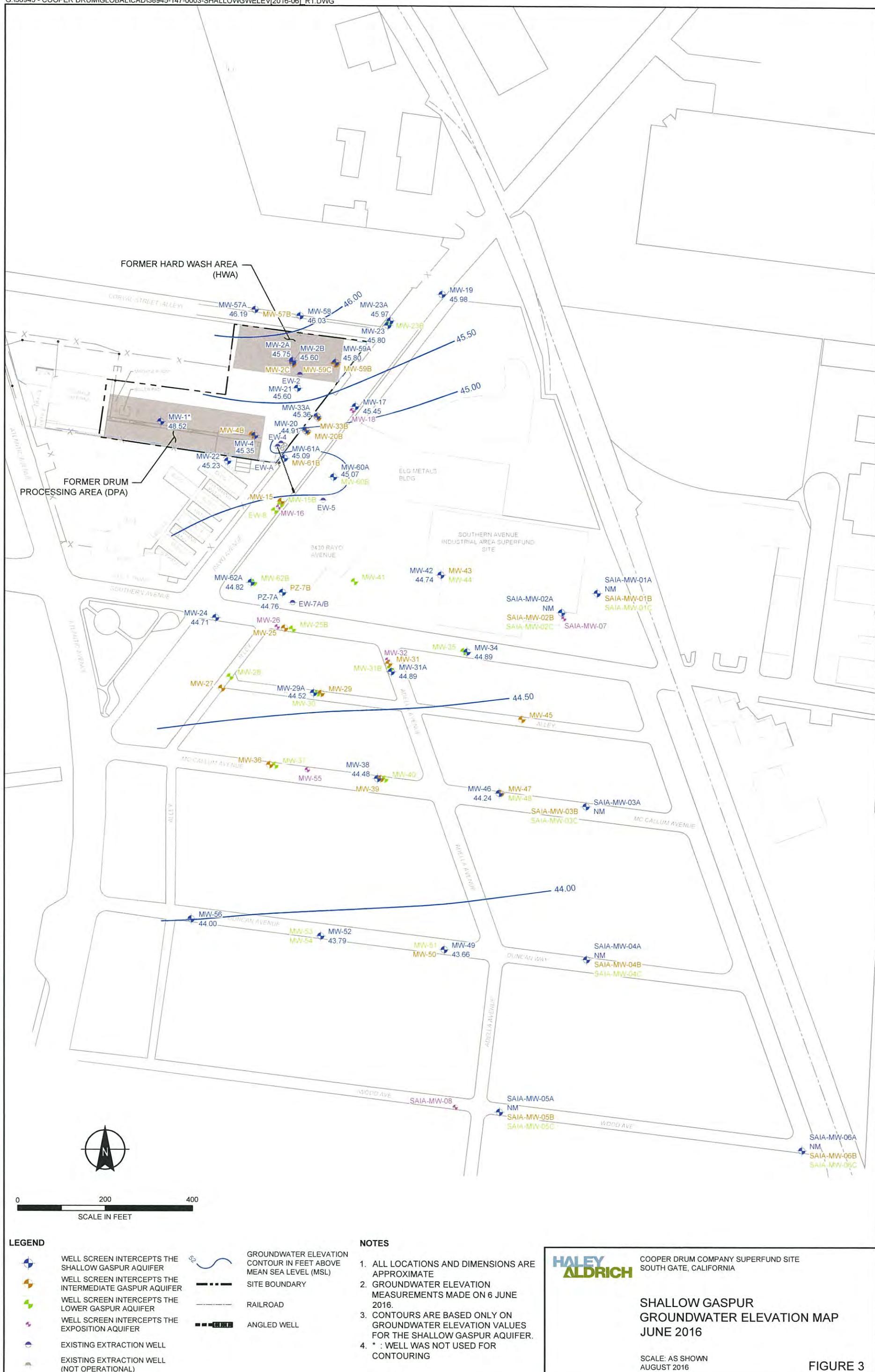
Surface Completion _____

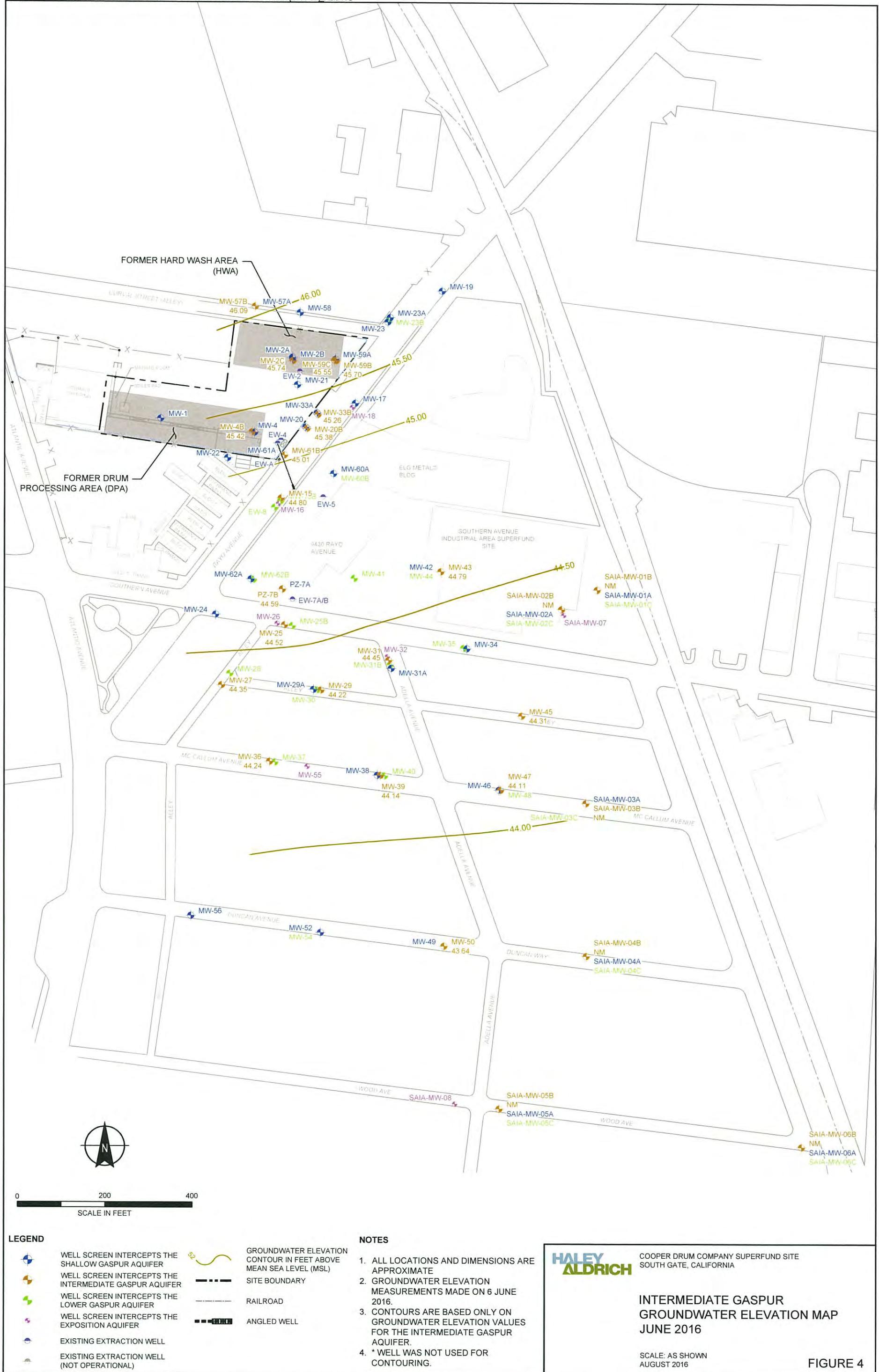
Boring Location Sketch

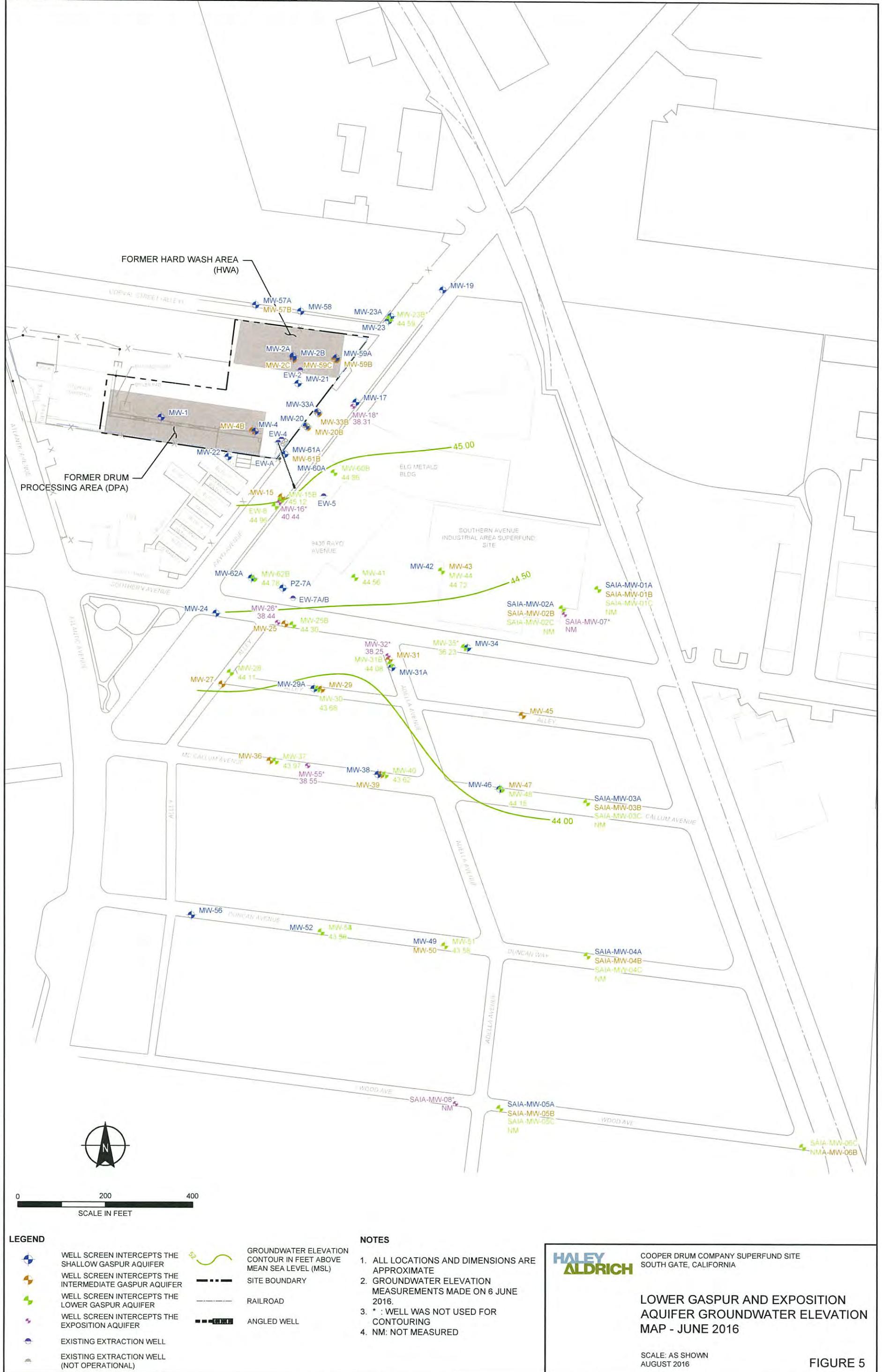
**Gilbane**

Attachment 2

**Groundwater Elevation Contour Maps from
Adjacent Cooper Drum Superfund Site**







Attachment 3

Summary of Previous Investigations

U.S. Environmental Protection Agency (EPA) Cooper Drum Superfund Site Remedial Investigation – March 1999 and October 2000 (URS Group, Inc., 2002).

- Groundwater contamination beneath the site was discovered by EPA during a remedial investigation of the adjacent Cooper Drum Superfund Site. Depth-discrete groundwater sampling results from cone penetrometer/Hydropunch (CPT/HP) borings (CPT-8 to CPT-10, CPT-20, and CPT-21) drilled on the site to delineate the extent of the Cooper Drum Superfund Site groundwater plume indicated a groundwater plume of VOCs (trichloroethene [TCE] and cis-1,2-dichloroethene [cis-1,2-DCE]) beneath the southeastern portion of the site.

EPA Preliminary Assessment/Site Inspection – 2002 (Weston Solutions, Inc., 2003).

- Results of the preliminary assessment/site inspection (PA/SI) indicated that three areas of environmental concern exist on the site (the location of three former aboveground storage tanks [ASTs], an underground sump, and an underground storage tank [UST]). Soil and groundwater samples collected on and off the site during the PA/SI were contaminated with volatile organic compounds (VOCs). The investigation indicated a release of cis-1,2-DCE and TCE to soil and groundwater beneath and downgradient from the site, and attributed the release to past operations at the site.

Seam Master Phase I Environmental Assessment – November 2002 (The Source Group, Inc., 2002).

- Results of this assessment, performed for the property owner (Ms. Joyce Brody), indicated that areas on the site posed environmental concern. These areas included several sumps containing oil and water, three abandoned concrete-lined pits previously used for AST secondary containment, a UST at the southern perimeter of the site, and an abandoned sump located south of a warehouse structure adjacent to a railroad spur along the eastern perimeter of the site.

Site Evaluation, Seam Master Industries (Lindmark Engineering, 2007).

- This site evaluation was performed for the SAIA tenant (Seam Master Industries). The site evaluation (which included some additional soil sampling at an existing machine shop) found contamination similar to those identified in the above evaluations, and summarized/evaluated the results of previous investigations and the handling of any hazardous chemicals by Seam Master Industries.

Field activities as part of the remedial design and eventual cleanup of the Cooper Drum Superfund Site from 2003 – 2009 (URS Group, Inc., 2007 and Innovative Technical Solutions, Inc. [ITSI], 2010).

- As part of these field activities, EPA drilled additional CPT/HP borings and installed monitoring wells on and downgradient from the site to define the areas of plume commingling. The estimated areas of the plumes and commingling are presented in *Remedial Design Technical Memorandum for Field Sampling Results Addendum No. 4, Monitoring Well Installations, Pumping Test, and Groundwater Sampling Results, April/May 2009, Cooper Drum Company Superfund Site*, (ITSI, 2010). The 2009 well installation event included constructing four, triple-completion wells and one single-completion well in the Gaspur Aquifer on and downgradient from the site (MW42-44, MW-45, MW46-48, MW49-51, and MW52-54 [**Figure 1**]).

CPT/HP investigation field activities as part of the remedial investigation/feasibility study for SAIA – March 2013 (ITSI Gilbane Company, 2013).

- EPA conducted a CPT/HP study to determine the most appropriate locations for the permanent wells to be installed on and downgradient from the site. A total of 20 CPT/HP borings were installed and sampled. Eight existing wells on the property and off site were also sampled. Sample locations included upgradient (i.e., ELG Metals and Jervis Webb sites), cross-gradient, and downgradient locations. When possible, samples were collected from the perched aquifer; the shallow, intermediate, and lower zones of the Gaspur Aquifer; and the Exposition Aquifer. Detailed discussion of the sampling results is presented in the *Proposed Monitoring Well Locations, Southern Avenue Industrial Area Superfund Site, Remedial Investigation/Feasibility Study, South Gate, California* (ITSI Gilbane Company, 2013). Overall, the study found that significant VOC concentrations (>1,000 micrograms per liter [ug/L]) were present at upgradient off-site, on-site, and downgradient off-site locations, with the highest VOC concentrations detected in the Shallow Gaspur Aquifer in the southeastern portion of the site. Significant VOC concentrations (> 1,000 ug/L) also were detected in the Intermediate and Lower Gaspur aquifers. Samples collected from the Exposition Aquifer indicated the presence of VOCs at concentrations below the corresponding California State Water Resources Control Board maximum contaminant levels (MCLs; California Department of Public Health, 2014) with the exception of samples from SAIA-HP10 and SAIA-CPT10, which were above the MCLs. Samples collected from the perched aquifer also indicated the presence of VOCs at concentrations less than MCLs, with the exception of two on-site locations (SAIA-HP10 and SAIA-HP21) and one downgradient location (SAIA-CPT05) that contained VOC concentrations above MCLs (see attached Figure A1).

